

University of Alberta Library



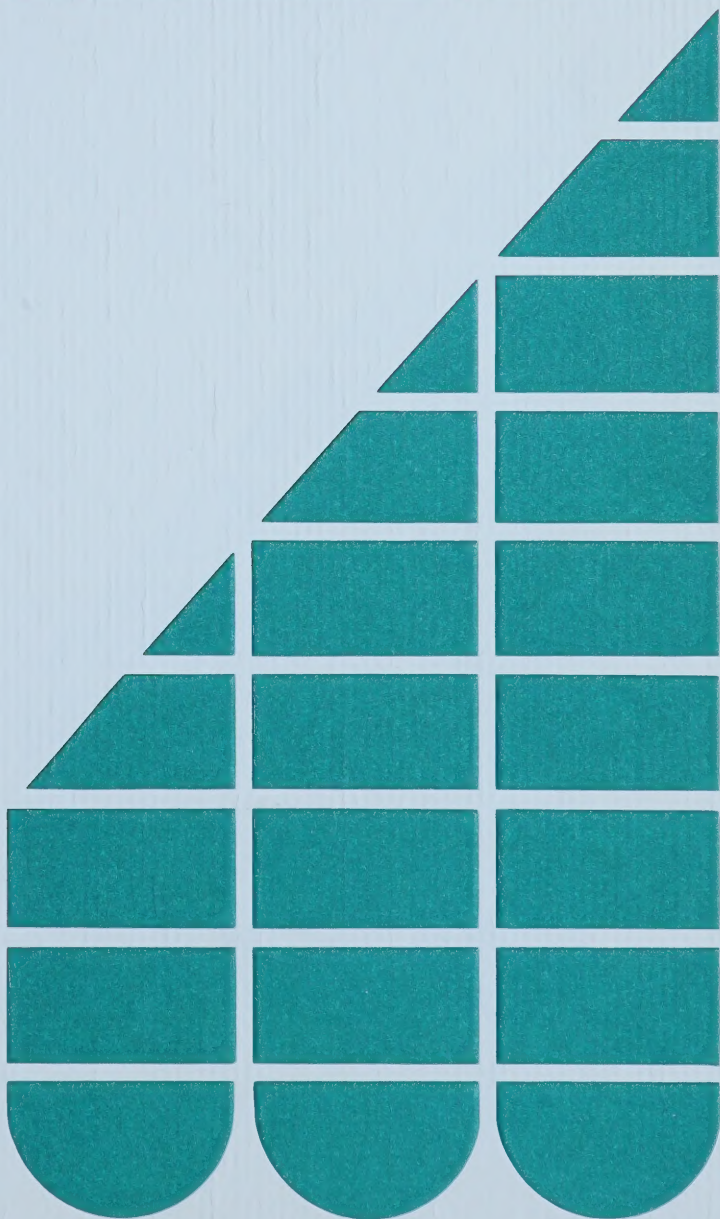
0 1620 2068 0706

1.9.9.1 *Annual Report*

**Michigan State
University
Agricultural
Experiment Station**

S
75
M624
1991

SCI/TECH





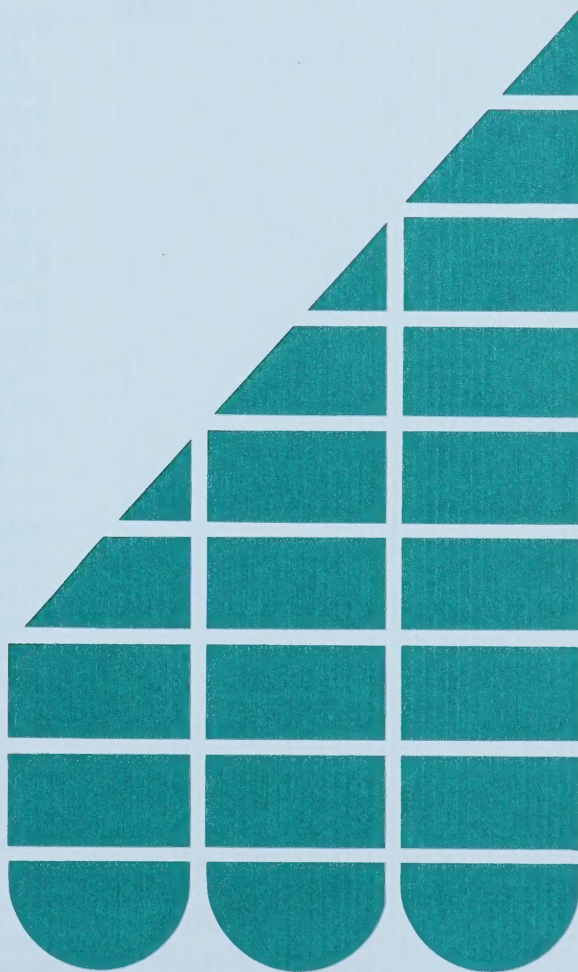
EX LIBRIS
UNIVERSITATIS
ALBERTENSIS



1.9.9.1

Annual Report

**Michigan State
University
Agricultural
Experiment Station**



Report prepared under the direction of Robert G. Gast, director of the Michigan Agricultural Experiment Station, and Doreen Woodward, assistant director finance & operations. Design by Christine Altese; editing and production by Jamie DePolo, information officer, Outreach Communications.

1991: Working Together to Meet Michigan's Needs

1991 could be called a year of cooperation for the Michigan Agricultural Experiment Station. The Experiment Station has always worked in collaboration with other agencies and organizations to meet the state's needs, but this year seemed to offer more opportunities for teamwork than ever before.

Working in conjunction with the Cooperative Extension Service, the Soil Conservation Service, the Michigan Department of Agriculture and the Michigan Association of Conservation Districts, AES scientists are addressing high priority areas such as integrated pest management (IPM) and animal manure management. The Experiment Station has also created task forces specializing in these areas.

To identify ways that the social sciences can be more effectively integrated into Agricultural Experiment Station programs and develop mutually beneficial relationships between MAES researchers and social scientists in other colleges, we also created an ad hoc Social Science Advisory Committee (SSAC) in 1990. Frank Fear, professor and chairperson of the Department of Resource Development, was the first chairperson of the SSAC. In 1991, he stepped down and was replaced as SSAC chairperson by Eileen van Ravenswaay, professor of agricultural economics. This year the committee has been using focus groups to determine priority areas and potential cooperative programs.

1991 also saw the beginning of the MAES leadership intern program. Sponsored by the national Experiment Station Committee on Organization and Policy (ESCOP) and the Cooperative State Research Service (CSRS), the program was created in recognition of the need to develop future leadership for the agricultural experiment station system. James Flore, professor of horticulture; Joseph Fridgen, professor of park and recreation resources; and Eileen van Ravenswaay, professor of agricultural economics, were the three interns chosen this year.

The program is divided into three phases: a six-day leadership workshop in Indiana, a three-day legislative workshop in Washington, D.C., and a year-long in-residence program in the MAES main office. Each of the interns is responsible for special administrative projects and has one-quarter of their time assigned to AES. This will be a continuing program—one to three participants per year will be selected from faculty members affiliated with the Experiment Station.

Though budgets and financial matters are an on-going challenge for us, we were encouraged by the legislature's positive response to MAES projects and budget priorities this year—the state's lawmakers increased the Experiment Station's base budget by more than 7 percent.

With the appointments of Fred Poston and Gail Imig, the College of Agriculture and Natural Resources administrative team is now fully in place.

Poston, former director of the Cooperative Extension Service and associate dean of agriculture and home economics at Washington State University in Pullman, Wash., was appointed to succeed James H. Anderson as the vice provost and dean of the CANR at the end of the summer.

Imig, a three-time MSU graduate and former Michigan Extension specialist, was named director of the Cooperative Extension Service in July. She was most recently the Cooperative Extension director at the University of Missouri.

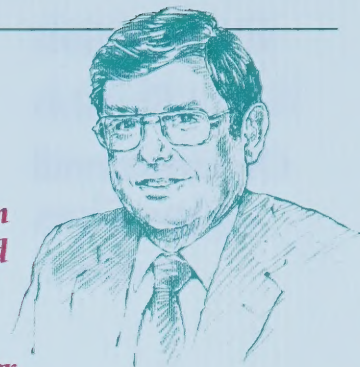
In other personnel changes, Jerry Dodgson was appointed chairperson of the Department of Microbiology and Public Health. The Department of Physiology chair position is open and recruitment is nearing completion. John Chimoskey is acting chairperson of the department. Niles Kevern, chairperson of the Department of Fisheries and Wildlife since 1969, will be stepping down from this position to return to teaching and research within the department. We appreciate Dr. Kevern's 22 years of dedicated and effective service. A search is underway for a new chairperson.

Though planning money was appropriated for a crop and soil sciences field laboratory at the corner of Mt. Hope and Beaumont roads, the state budget situation has put construction on hold.

Signs are encouraging for the facilities phase of the Michigan animal agriculture initiative. Funding for the planning phase and a portion of the facilities were generated last year. Funding for the programmatic phase—\$3.6 million—was included as part of the MSU budget request this year. The funding for this initiative has been possible through the continued cooperation and support of all segments of the agricultural community.

1992, like each new year, will bring a fresh set of challenges and opportunities. By continuing to prioritize issues and encouraging the development and recruitment of top-notch faculty members, the Michigan Agricultural Experiment Station will carry out its mission to provide the research base to help strengthen the state's economy, a healthy environment and enriched quality of life in 1992 and throughout the decade.

"The Experiment Station has always worked in collaboration with other agencies and organizations to meet the state's needs, but this year seemed to offer more opportunities for teamwork than ever before."



Robert G. Gast

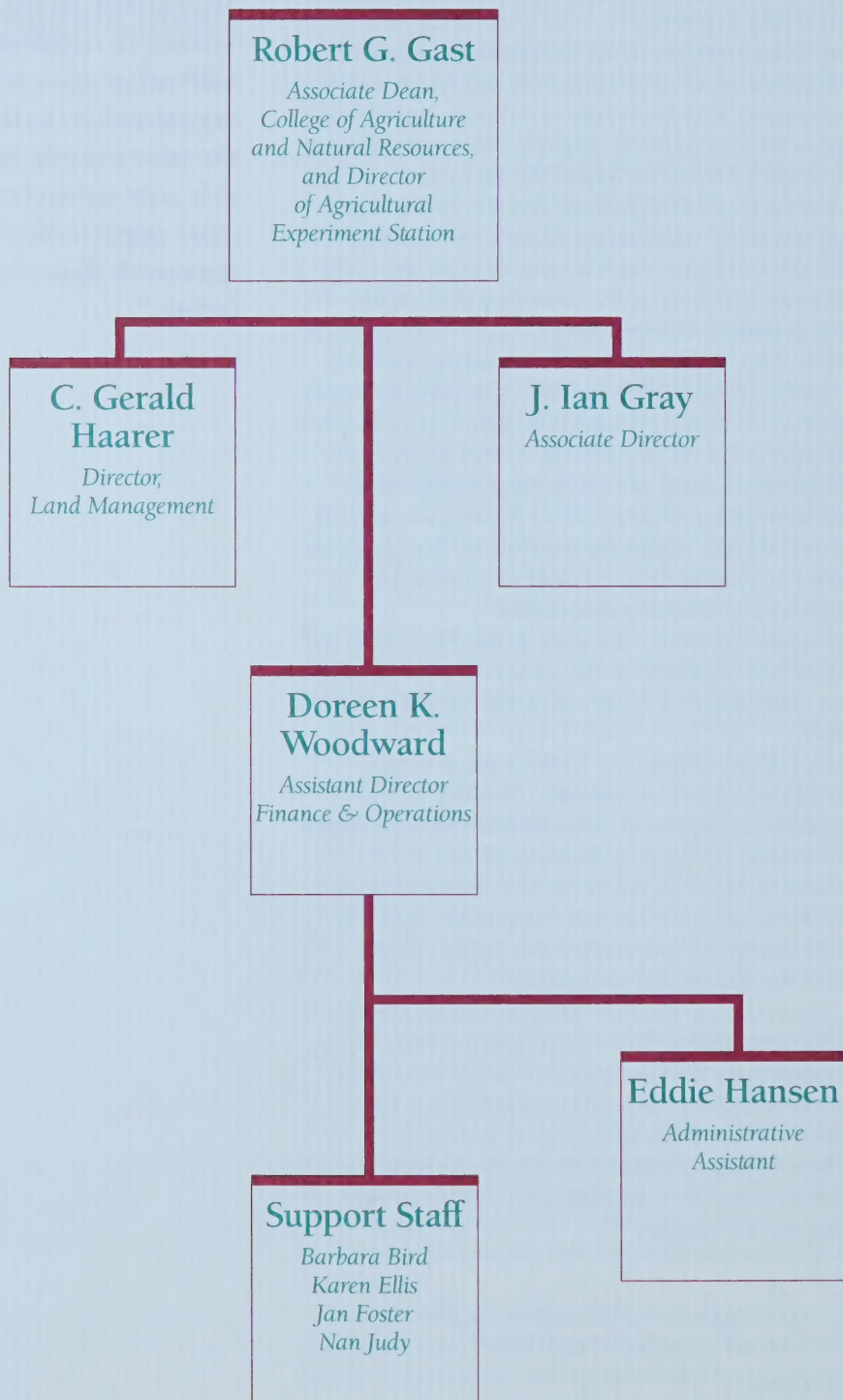
Robert G. Gast

Director

Michigan Agricultural Experiment Station

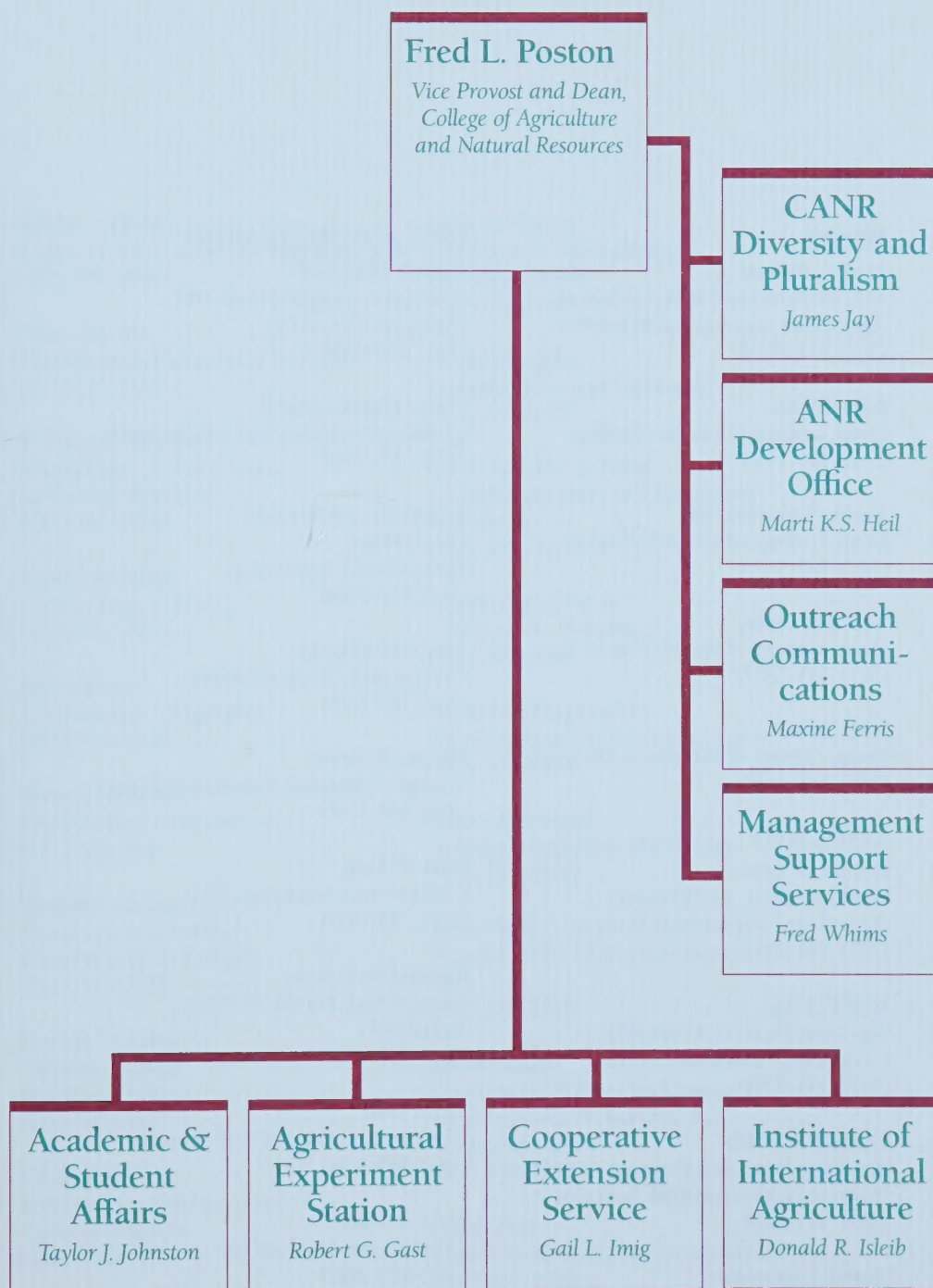
Agricultural Experiment Station Organizational Flow Chart

As of 10-1-91



College of
Agriculture
And Natural
Resources
Dean's Office

As of 10-1-91



AES Affiliated Deans, Directors, and Unit Administrators

As of 10-1-91

DEANS

Fred L. Poston

Vice Provost and Dean, College of
Agriculture and Natural Resources
(517) 355-0232

Julia Miller

Dean, College of Human Ecology
(517) 355-7714

Frank Hoppensteadt

Dean, College of Natural Science
(517) 355-4473

Kenneth Corey

Dean, College of Social Science
(517) 355-6675

John Tasker

Dean, College of Veterinary Medicine
(517) 355-6509

DIRECTORS

Robert G. Gast

Associate Dean and Director,
Agricultural Experiment Station
(517) 355-0123

Gail L. Imig

Associate Dean and Director,
Cooperative Extension Service
(517) 355-2308

Donald R. Isleib

Associate Dean and Director,
Institute of International Agriculture
(517) 355-0174

Taylor J. Johnston

Associate Dean and Director,
Academic Programs
(517) 355-0234

UNIT ADMINISTRATORS

Carroll Wamhoff

Chairperson, Agricultural and
Extension Education
(517) 355-6580

Lester Manderscheid

Chairperson, Agricultural Economics
(517) 355-4567

Robert D. von Bernuth

Chairperson,
Agricultural Engineering
(517) 353-7268

Maynard Hogberg

Chairperson, Animal Science
(517) 355-8384

Maxine S. Ferris

Manager, Outreach Communications
(517) 336-1555

John Wilson

Chairperson, Biochemistry
(517) 353-0804

Gustaaf de Zoeten

Chairperson, Botany & Plant
Pathology
(517) 355-4688

Eldor Paul

Chairperson, Crop & Soil Sciences
(517) 355-0262

Mark Scriber

Chairperson, Entomology
(517) 355-4665

Lawrence J. Fischer

Director, Institute for Environmental
Toxicology
(517) 353-6469

Robert Griffore

Chairperson, Family & Child Ecology
(517) 355-7680

Niles Kevern

Chairperson, Fisheries & Wildlife
(517) 353-0647

P. Vincent Hegarty

Chairperson, Food Science
& Human Nutrition
(517) 355-8476

Daniel Keathley

Chairperson, Forestry
(517) 355-0093

Judy Olson

Chairperson, Geography
(517) 355-4649

Wayne Loescher

Chairperson, Horticulture
(517) 355-5191

Timothy Springer

Chairperson, Human
Environment & Design
(517) 355-7712

Patrick Webber

Director, Kellogg
Biological Station
(616) 671-5117

Ed Mather

Chairperson, Large Animal
Clinical Sciences
(517) 355-0593

C. Gerald Haarer

Director, Land Management
(517) 355-3272

Jerry Dodgson

Chairperson, Microbiology
& Public Health
(517) 355-6465

Harold Hughes

Director, School of Packaging
(517) 353-6462

Betty van der Smissen

Chairperson, Park and Recreation
Resources
(517) 353-0822

Charles Mackenzie

Chairperson, Pathology
(517) 353-9160

Robert Hollingworth

Director, Pesticide Research Center
(517) 353-9430

John Chimoskey

Acting Chairperson, Physiology
(517) 355-4488

Peter Wolk

Director, MSU-DOE Plant Research
Lab
(517) 353-2270

Jon Bartholic

Coordinator, Center for Remote
Sensing; Director, Institute for
Water Research
(517) 355-3421

Frank Fear

Chairperson, Resource Development
(517) 355-3421

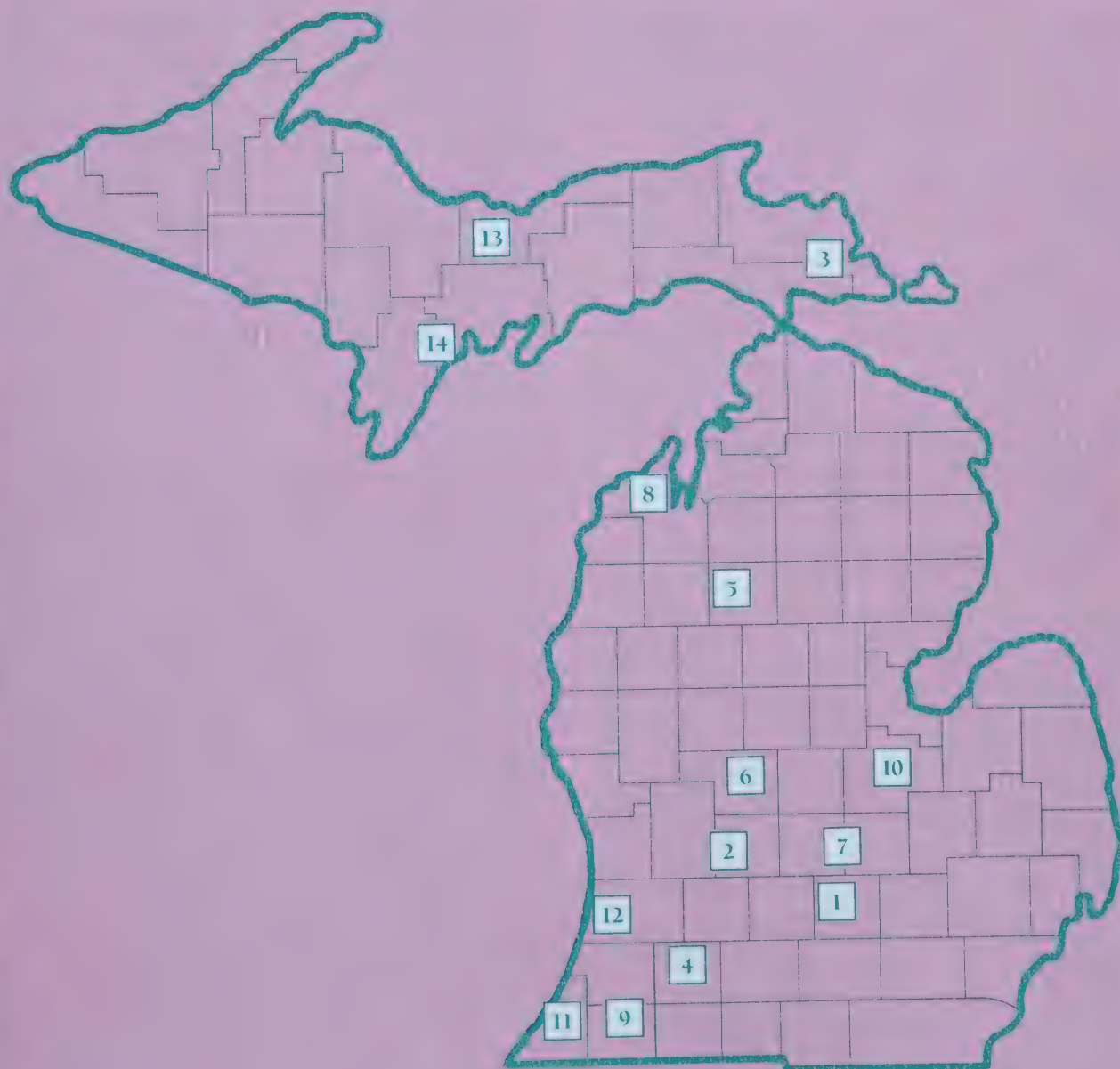
Chris Vanderpool

Chairperson, Sociology
(517) 355-6632

Agricultural Experiment Station Outlying Stations

10-1-91

1. **East Lansing Field Research Facilities**
Established 1888
109 Agriculture Hall
East Lansing, MI 48824-1039
Phone: (517) 355-3272
C. Gerald Haarer
Director, Land Management
2. **Clarksville Horticultural Experiment Station**
Established 1974
Box 77A
9302 Portland Road
Clarksville, MI 48815
Phone: (616) 693-2193
Gerald Skeltis
Farm Manager
3. **Dunbar Forest Experiment Station**
Established 1925
Rt. 1, Box 179
Sault Ste. Marie, MI 49783
Phone: (906) 786-1575
Ray Miller
Forester
4. **W.K. Kellogg Biological Station and W.K. Kellogg Forest**
Established 1928
3700 E. Gull Lake Drive
Hickory Corners, MI 49060
Phone: (616) 671-5117
Bernie Knezek (616) 671-2324
Director, Agricultural Programs
Patrick Webber (616) 671-2323
Director, Programs and Development
Greg Kowalewski (616) 731-4597
Resident Forester
5. **Lake City Experiment Station**
Established 1928
Lake City, MI 49651
Phone: (616) 839-4608
Doug Nielsen
Farm Manager
6. **Montcalm Research Farm**
Established 1966
Rt. 1
Lakeview, MI 48850
Phone: (517) 365-3473
Richard Crawford
Technician
7. **Muck Soils Research Farm**
Established 1941
Rt. 3
9422 E. Herbison Road
Laingsburg, MI 48848
Phone: (517) 641-4062
Ronald Gnagey
Field Research Technician
8. **Northwest Michigan Horticultural Research Station**
Established 1979
6686 Center Highway
Traverse City, MI 49684
Phone: (616) 946-1510
Charles Kesner
Supervisor
Bill Klein
Farm Manager
9. **Fred Russ Forest Experiment Station**
Established 1942
20673 Marcellus Highway
Decatur, MI 49045
Phone: (616) 782-5652
Greg Kowalewski
Forester
Scott Newland
Forest Supervisor
10. **Saginaw Valley Beet and Bean Research Farm**
Established 1971
3066 S. Thomas Road
Saginaw, MI 48603
Phone: (517) 781-1160
Paul Horny
Farm Manager
11. **SW Michigan Research & Extension Center**
Established 1987
1791 Hillandale Road
Benton Harbor, MI 49022
Phone: (616) 944-1477
James Ertman
Farm Manager
Tom Zabadal
Station Coordinator
12. **Trevor Nichols Research Complex**
Established 1967
6237 124th Avenue
Fennville, MI 49408
Phone: (517) 355-9615 or (616) 561-5040
Matthew Daly
Farm Manager
13. **Upper Peninsula Experiment Station**
Established 1899
Chatham, MI 49816
Phone: (906) 439-5114
Paul Naasz
Farm Manager
14. **Upper Peninsula Tree Improvement Center**
Established 1986
6005 J Road
Escanaba, MI 49829
Phone: (906) 786-1575
Ray Miller
Resident Forester



List of AES Scientists by Department

As of 10-1-91

NAME	DEPARTMENT
Heinze, Kirk L.	Ag & Extension Education
Levine, S. Joseph	Ag & Extension Education
Black, J. Roy	Agricultural Economics
Bonnen, James T.	Agricultural Economics
Eicher, Carl K.	Agricultural Economics
Ferris, John N.	Agricultural Economics
Graham-Tomasi, Theodore	Agricultural Economics
Hamm, Larry G.	Agricultural Economics
Hanson, Steven D.	Agricultural Economics
Harsh, Stephen B.	Agricultural Economics
Hoehn, John P.	Agricultural Economics
Lloyd, James W.	Agricultural Economics
Lohr, Luanne	Agricultural Economics
Myers, Robert S.	Agricultural Economics
Oehmke, James F.	Agricultural Economics
Peterson, H. Christopher	Agricultural Economics
Ricks, Donald J.	Agricultural Economics
Robison, Lindon J.	Agricultural Economics
Schmid, A. Allan	Agricultural Economics
Schwab, Gerald D.	Agricultural Economics
Shaffer, James D.	Agricultural Economics
Swinton, Scott M.	Agricultural Economics
van Ravenswaay, Eileen O.	Agricultural Economics
Weber, Michael T.	Agricultural Economics

Anderson, James H.	Agricultural Engineering
Bakker-Arkema, Fred	Agricultural Engineering
Berglund, Kris A.	Agricultural Engineering
Bickert, William G.	Agricultural Engineering
Bralts, Vincent F.	Agricultural Engineering
Brook, Roger C.	Agricultural Engineering
Burkhardt, Thomas H.	Agricultural Engineering
Gerrish, John B.	Agricultural Engineering
Grulke, Eric A.	Agricultural Engineering
Guyer, Daniel E.	Agricultural Engineering
Loudon, Theodore L.	Agricultural Engineering
Merva, George E.	Agricultural Engineering
Mrozowski, Timothy	Agricultural Engineering
Ofoli, Robert Y.	Agricultural Engineering
Person, Howard L.	Agricultural Engineering
Segerlind, Larry J.	Agricultural Engineering
Srivastava, Ajit K.	Agricultural Engineering
Steffe, James F.	Agricultural Engineering
Surbrook, Truman C.	Agricultural Engineering
Van Ee, Gary R.	Agricultural Engineering
Wilkinson, Robert H.	Agricultural Engineering

NAME	DEPARTMENT
Allen, Michael	Animal Science
Aulerich, Richard J.	Animal Science
Balander, Richard J.	Animal Science
Bergen, Werner G.	Animal Science
Bucholtz, Herbert F.	Animal Science
Bursian, Steven	Animal Science
Chang, Timothy S.	Animal Science
Chou, Karen	Animal Science
Coe, Paul H.	Animal Science
Cook, Robert M.	Animal Science
Coussens, Paul M.	Animal Science
Dukelow, W. Richard	Animal Science
Emery, Roy S.	Animal Science
Ferris, Theodore A.	Animal Science
Flegal, Cal J.	Animal Science
Fogwell, Ralph L.	Animal Science
Gill, John L.	Animal Science
Hawkins, David R.	Animal Science
Ireland, James J.	Animal Science
Mao, Ivan Ling	Animal Science
McGilliard, Lon D.	Animal Science
Merkel, Robert A.	Animal Science
Miller, Elwyn R.	Animal Science
Rahn, Allan P.	Animal Science
Ritchie, Harlan D.	Animal Science
Rust, Steven	Animal Science
Skidmore, Andrew	Animal Science
Sniffen, Charles*	Animal Science
Stowe, Howard D.	Animal Science
Tucker, H. Allen	Animal Science
Ullrey, Duane E.	Animal Science
VandeHaar, Michael	Animal Science
Yokoyama, Melvin T.	Animal Science

Anderson, Richard L.	Biochemistry
Burton, Zachary	Biochemistry
Denison, Michael	Biochemistry
Fraker, Pamela J.	Biochemistry
Hausinger, Robert P.	Biochemistry
Holland, John F.	Biochemistry
Kaguni, Jon M.	Biochemistry
Kindel, Paul K.	Biochemistry
Kroos, Lee	Biochemistry
McGroarty, Estelle J.	Biochemistry
Preiss, Jack	Biochemistry
Schindler, Melvin	Biochemistry
Triezenberg, Steven	Biochemistry

NAME _____	DEPARTMENT	NAME	DEPARTMENT
Wang, John L.	Biochemistry	Ayers, George S.	Entomology
Watson, J. Throck	Biochemistry	Bird, George W.	Entomology
Adams, Gerard C.	Botany and Plant Pathology	Edens, Thomas C.	Entomology
Allison, Richard	Botany and Plant Pathology	Gage, Stuart H.	Entomology
Fulbright, Dennis W.	Botany and Plant Pathology	Grafius, Edward J.	Entomology
Hammerschmidt, Raymond	Botany and Plant Pathology	Haynes, Dean L.	Entomology
Hart, John H.	Botany and Plant Pathology	Hoopingartner, Roger A.	Entomology
Hart, L. Patrick	Botany and Plant Pathology	Johnson, James W.	Entomology
Jarosz, Andrew	Botany and Plant Pathology	Landis, Douglas A.	Entomology
Jones, Alan L.	Botany and Plant Pathology	Merritt, Richard W.	Entomology
Lacy, Melvyn L.	Botany and Plant Pathology	Miller, James R.	Entomology
Ohlrogge, John	Botany and Plant Pathology	Olsen, Larry G.	Entomology
Ramsdell, Donald C.	Botany and Plant Pathology	Raikhel, Alexander S.	Entomology
Safir, Gene R.	Botany and Plant Pathology	Smitley, David R.	Entomology
Sears, Barbara	Botany and Plant Pathology	Stehr, Frederick W.	Entomology
Somerville, Shauna	Botany and Plant Pathology	Walker, Edward D.	Entomology
Stephens, Christine	Botany and Plant Pathology	Whalon, Mark E.	Entomology
Vargas, Joseph M., Jr.	Botany and Plant Pathology	Zabik, Matthew J.	Entomology
Anderson, Sharon J.	Crop and Soil Sciences	Imig, David R.	Family and Child Ecology
Boyd, Stephen A.	Crop and Soil Sciences	Keefe, Dennis R.	Family and Child Ecology
Branham, Bruce E.	Crop and Soil Sciences	Keith, Joanne G.	Family and Child Ecology
Chase, Richard W.	Crop and Soil Sciences	Campa, Henry, III	Fisheries & Wildlife
Christenson, Donald R.	Crop and Soil Sciences	Coon, Thomas G.	Fisheries & Wildlife
Cress, Charles E.	Crop and Soil Sciences	Garling, Donald L.	Fisheries & Wildlife
Crum, James L.	Crop and Soil Sciences	Giesy, John P.	Fisheries & Wildlife
Douches, David S.	Crop and Soil Sciences	Hauffer, Jonathan B.	Fisheries & Wildlife
Ellis, Boyd G.	Crop and Soil Sciences	McNabb, Clarence D.	Fisheries & Wildlife
Foster, Eunice F.	Crop and Soil Sciences	Peyton, R. Benny	Fisheries & Wildlife
Freed, Russell D.	Crop and Soil Sciences	Prince, Harold H.	Fisheries & Wildlife
Harpstead, Dale D.	Crop and Soil Sciences	Taylor, William W.	Fisheries & Wildlife
Harwood, Richard R.**	Crop and Soil Sciences	Winterstein, Scott R.	Fisheries & Wildlife
Hesterman, Oran B.	Crop and Soil Sciences	Booren, Alden M.	Food Science
Jacobs, Lee W.	Crop and Soil Sciences	Cash, Jerry N.	Food Science
Kells, James J., Jr.	Crop and Soil Sciences	Gray, J. Ian	Food Science
Kelly, James D.	Crop and Soil Sciences	Helferich, William G.	Food Science
Knezek, Bernard D.	Crop and Soil Sciences	Linz, John E.	Food Science
Kunze, Raymond J.	Crop and Soil Sciences	Merkel, Robert A.	Food Science
Leep, Richard H.	Crop and Soil Sciences	Ofoli, Robert Y.	Food Science
Lenski, Richard E.****	Crop and Soil Sciences	Partridge, John A.	Food Science
Mokma, Delbert L.	Crop and Soil Sciences	Pestka, James J.	Food Science
Moline, Waldimar J.	Crop and Soil Sciences	Price, James F.	Food Science
Penner, Donald	Crop and Soil Sciences	Smith, Denise M.	Food Science
Pierce, J. Francis	Crop and Soil Sciences	Steffe, James F.	Food Science
Renner, Karen A.	Crop and Soil Sciences	Strasburg, Gale M.	Food Science
Rieke, Paul E.	Crop and Soil Sciences	Uebersax, Mark A.	Food Science
Ritchie, Joe T.***	Crop and Soil Sciences	Ustunol, Zeynep	Food Science
Robertson, G. Phillip	Crop and Soil Sciences	Wishnetsky, Theodore	Food Science
Rogers, John N., III	Crop and Soil Sciences	Chappelle, Daniel E.	Forestry
Smucker, A.J.M.	Crop and Soil Sciences	Dickmann, Donald I.	Forestry
Thomashow, Michael F.	Crop and Soil Sciences	Hanover, James W.	Forestry
Tiedje, James M.	Crop and Soil Sciences	Hart, James B., Jr.	Forestry
Vitosh, Maurice L.	Crop and Soil Sciences	Kielbaso, Julian J.	Forestry
Ward, Richard W.	Crop and Soil Sciences	Lantagne, Douglas O.	Forestry
Warncke, Darryl D.	Crop and Soil Sciences	Leefers, Larry A.	Forestry

NAME	DEPARTMENT	NAME	DEPARTMENT
Manthy, Robert S.	Forestry	Thacker, Brad J.	Large Animal Clinical Sciences
McDonough, Maureen H.	Forestry	Breznak, John A.	Microbiology & Public Health
Potter-Witter, Karen L.	Forestry	Champness, Wendy C.	Microbiology & Public Health
Pregitzer, Kurt S.	Forestry	Dazzo, Frank B.	Microbiology & Public Health
Ramm, Carl W.	Forestry	de Bruijn, Frans J.	Microbiology & Public Health
Suchsland, Otto M.	Forestry	Hausinger, Robert P.	Microbiology & Public Health
Beaudry, Randolph M.	Horticulture	Klug, Michael J.	Microbiology & Public Health
Biernbaum, John A.	Horticulture	Maes, Roger K.	Microbiology & Public Health
Bukovac, Martin J.	Horticulture	Reddy, C. Adinarayana	Microbiology & Public Health
Cameron, Arthur C.	Horticulture	Thomashow, Michael F.	Microbiology & Public Health
Carlson, William H.	Horticulture	Tiedje, James M.	Microbiology & Public Health
Dennis, Frank G., Jr.	Horticulture	Uffen, Robert L.	Microbiology & Public Health
Dilley, David R.	Horticulture	Velicer, Leland F.	Microbiology & Public Health
Ewart, Lowell C.	Horticulture		
Flore, James A.	Horticulture	Giacin, Jack R.	Packaging
Grumet, Rebecca	Horticulture	Hernandez, Ruben J.	Packaging
Hancock, James F.	Horticulture	Lee, Julian J. L.	Packaging
Hanson, Eric J.	Horticulture		
Heins, Royal D.	Horticulture	Fridgen, Joseph D.	Park & Recreation Resources
Herner, Robert C.	Horticulture	Holecek, Donald F.	Park & Recreation Resources
Howell, Gordon S.	Horticulture	Nelson, Charles M.	Park & Recreation Resources
Hull, Jerome, Jr.	Horticulture	Stynes, Daniel J.	Park & Recreation Resources
Iezzoni, Amy F.	Horticulture		
Kelly, John	Horticulture	Bell, Thomas G.	Pathology
Nair, Muraleedharan	Horticulture	Grimes, Sheila D.	Pathology
Perry, Ronald L.	Horticulture	Padgett, George A.	Pathology
Ries, Stanley K.	Horticulture	Patterson, Jon S.	Pathology
Schutzki, Robert E.	Horticulture	Render, James A.	Pathology
Sink, Kenneth C.	Horticulture	Sleight, Stuart D.	Pathology
Widders, Irvin E.	Horticulture		
Zabadal, Thomas J.	Horticulture	Dukelow, W. Richard	Physiology
Zandstra, Bernard H.	Horticulture	Hootman, Seth R.	Physiology
		Zipser, Birgit	Physiology
Graham, Richard L.	Human Environment & Design	Axinn, George	Resource Development
Slocum, Ann C.	Human Environment & Design	Bronstein, Daniel A.	Resource Development
Sontag, M. Suzanne	Human Environment & Design	Chappelle, Daniel E.	Resource Development
Sternquist, Brenda	Human Environment & Design	Dersch, Eckhart	Resource Development
Bennink, Maurice R.	Human Nutrition	Edens, Thomas C.	Resource Development
Bond, Jenny T.	Human Nutrition	Kakela, Peter J.	Resource Development
Chenoweth, Wanda L.	Human Nutrition	Kimball, William J.	Resource Development
Hoerr, Sharon M.	Human Nutrition	Schultink, Gerhardus	Resource Development
Romsos, Dale R.	Human Nutrition	Vlasin, Ray	Resource Development
Sawyer, Carol A.	Human Nutrition		
Schemmel, Rachelle A.	Human Nutrition	Bokemeier, Janet L.	Sociology
Song, Won O.	Human Nutrition	Busch, Lawrence M.	Sociology
Zabik, Mary E.	Human Nutrition	Harris, Craig K.	Sociology
Zile, Maija H.	Human Nutrition	Johnson, Nan E.	Sociology
		Schwarzweiler, Harry K.	Sociology
Bush, Guy L.	Kellogg Biological Station		
Baker, John C.	Large Animal Clinical Sciences	*Clinton E. Meadows Endowed Chair for	
Herd, Thomas H.	Large Animal Clinical Sciences	Dairy Cattle Research	
Holland, Robert E.	Large Animal Clinical Sciences	**C.S. Mott Distinguished Professor of	
Kaneene, John B.	Large Animal Clinical Sciences	Sustainable Agriculture	
Robinson, Norman E.	Large Animal Clinical Sciences	***Nowlin Professor for Water Research	
Stowe, Howard D.	Large Animal Clinical Sciences	****Hannah Professor for Microbial	
		Ecology and Plant Sciences	

List of AES Scientists

As of 10-1-91

The names listed here represent the faculty members who have an AES appointment and are in the tenure stream as of 10-1-91.

KEY:

Univ.Gen = College of Agriculture & Natural Resources University General

AES = Agricultural Experiment Station

CES = Cooperative Extension Service

Joint = Joint Appointment in another College or Department

12 = Professor

13 = Associate Professor

14 = Assistant Professor

NAME	DEPARTMENT	RANK	Full Time Employee-Percent				GRANT	JOINT	AREA OF INTEREST
			UNIV. GEN	AES	CES				
Adams, Gerard C.	Botany and Plant Pathology	13	0	0.22	0.6	0	0.18		Plant Pathology
Allen, Michael	Animal Science	14	0	0.5	0.5	0	0		Forage Nutrition
Allison, Richard	Botany and Plant Pathology	14	0	0.9	0	0	0.1		Molecular Virology
Anderson, James H.	Agricultural Engineering	12	0.67	0.16	0.17	0	0		Administration/Power Mach.
Anderson, Richard L.	Biochemistry	12	0.45	0.25	0	0	0.3		Carbohydrate Metabolism
Anderson, Sharon J.	Crop and Soil Sciences	14	0.25	0.75	0	0	0		Surface Soil Chemistry
Aulerich, Richard J.	Animal Science	12	0	0.75	0.25	0	0		Fur-bearing Animals
Axinn, George	Resource Development	12	0.16	0.33	0	0	0.51		Community & Regional Development
Ayers, George S.	Entomology	12	0	0.1	0	0	0.9		IPM/Apiculture
Baker, John C.	Large Animal Clinical Sciences	13	0	0.2	0	0	0.8		Bovine Respiratory Diseases
Bakker-Arkema, Fred	Agricultural Engineering	12	0.35	0.65	0	0	0		Grain Dry/Storage
Balander, Richard J.	Animal Science	13	0.6	0.4	0	0	0		Avian Physiology/Reproduction
Beaudry, Randolph M.	Horticulture	14	0	0.5	0.5	0	0		Postharvest Physiology/Fruit & Veg.
Bell, Thomas G.	Pathology	12	0	0.25	0	0	0.75		Compar Pathology/Platelet Function
Bennink, Maurice R.	Human Nutrition	12	0	0.5	0	0	0.5		Nutrition
Bergen, Werner G.	Animal Science	12	0.2	0.8	0	0	0		Ruminant Nutrition/Growth Biology
Berglund, Kris A.	Agricultural Engineering	12	0.3	0.3	0	0	0.4		Biotechnology/Food Engineering
Bickert, William G.	Agricultural Engineering	12	0	0.2	0.8	0	0		Livestock Facilities/Environment
Biernbaum, John A.	Horticulture	13	0.45	0.2	0	0	0.35		Plant Physiology/Floriculture
Bird, George W.	Entomology	12	0	0.4	0.5	0	0.1		Agricultural Nematology
Black, J. Roy	Agricultural Economics	12	0.2	0.8	0	0	0		Farm Management

NAME	DEPARTMENT	Full Time Employee-Percent						AREA OF INTEREST
		RANK	UNIV. GEN	AES	CES	GRANT	JOINT	
Bokemeier, Janet L.	Sociology	12	0	0.5	0	0	0.5	Farm Family/Labor Markets
Bond, Jenny T.	Human Nutrition	12	0	0.4	0	0	0.6	Nutrition
Bonnen, James T.	Agricultural Economics	12	0.15	0.85	0	0	0	Public Policy
Booren, Alden M.	Food Science	12	0.1	0.15	0.75	0	0	Meat/Poultry/Fish
Boyd, Stephen A.	Crop and Soil Sciences	12	0.25	0.75	0	0	0	Organic Chemistry
Bralts, Vincent F.	Agricultural Engineering	13	0.3	0.5	0	0	0.2	Soil & Water/International Program
Branham, Bruce E.	Crop and Soil Sciences	13	0.25	0.75	0	0	0	Turfgrass Physiology
Breznak, John A.	Microbiology & Public Health	12	0	0.3	0	0	0.7	Microbial Ecology
Bronstein, Daniel A.	Resource Development	12	0.6	0.4	0	0	0	Environmental Policy & Law
Brook, Roger C.	Agricultural Engineering	12	0	0.25	0.75	0	0	Postharvest Handling
Bucholtz, Herbert F.	Animal Science	12	0	0.2	0.8	0	0	Dairy Nutrition/Management
Bukovac, Martin J.	Horticulture	12	0.1	0.9	0	0	0	Plant Physiology/Pomology
Burkhardt, Thomas H.	Agricultural Engineering	12	0.6	0.25	0	0	0.15	Power & Machine Systems & Storage
Bursian, Steven	Animal Science	12	0.15	0.85	0	0	0	Avian Physiology/Toxicology
Burton, Zachary	Biochemistry	14	0	0.2	0	0	0.8	Molecular Biology
Busch, Lawrence M.	Sociology	12	0	0.5	0	0	0.5	Struc. of Agr. Sci./Agr. Res. Policy
Bush, Guy L.	Kellogg Biological Station	12	0	0.1	0	0	0.9	Genetics
Cameron, Arthur C.	Horticulture	13	0.3	0.7	0	0	0	Plant Physiology/Landscape Hort.
Campa, Henry III	Fisheries & Wildlife	14	0.5	0.5	0	0	0	Wildlife Ecology
Carlson, William H.	Horticulture	12	0.15	0.35	0.5	0	0	Floriculture/Physiology & Bedding
Cash, Jerry N.	Food Science	12	0	0.25	0.75	0	0	Fruit/Vegetable Products
Champness, Wendy C.	Microbiology & Public Health	14	0	0.5	0	0	0.5	Microbial Genetics
Chang, Timothy S.	Animal Science	12	0.15	0.85	0	0	0	M&PH/Poultry Pathology
Chappelle, Daniel E.	Forestry	12	0	0.33	0	0	0.67	Resource Economics & Policy
Chappelle, Daniel E.	Resource Development	12	0.6	0.07	0	0	0.33	Resource Economics & Policy
Chase, Richard W.	Crop and Soil Sciences	12	0.1	0.25	0.65	0	0	Crop Management
Chenoweth, Wanda L.	Human Nutrition	12	0	0.25	0	0	0.75	Nutrition
Chou, Karen	Animal Science	14	0.5	0.13	0	0.37	0	Toxicology
Christenson, Donald R.	Crop and Soil Sciences	12	0	0.5	0.5	0	0	Soil Fertilizer Management
Coe, Paul H.	Animal Science	13	0	0.2	0	0	0.8	Animal Health
Cook, Robert M.	Animal Science	12	0.2	0.8	0	0	0	Ruminant Nutrition
Coon, Thomas G.	Fisheries & Wildlife	14	0.5	0.5	0	0	0	Fisheries
Coussens, Paul M.	Animal Science	14	0.2	0.8	0	0	0	Molecular Biology
Cress, Charles E.	Crop and Soil Sciences	12	0.9	0.1	0	0	0	Applied Statistics
Crum, James L.	Crop and Soil Sciences	13	0.6	0.25	0	0	0.15	Soil Class/Genesis
Dazzo, Frank B.	Microbiology & Public Health	12	0	0.8	0	0	0.2	Microbial Ecology
de Bruijn, Frans J.	Microbiology & Public Health	13	0	0.29	0	0	0.71	Molecular Biology
Denison, Michael	Biochemistry	14	0.15	0.65	0	0	0.2	Toxicology/Molecular Biology
Dennis, Frank G., Jr.	Horticulture	12	0.6	0.4	0	0	0	Plant Physiology/Pomology
Dersch, Eckhart	Resource Development	12	0.22	0.17	0.61	0	0	Natural Resources Management
Dickmann, Donald I.	Forestry	12	0.4	0.6	0	0	0	Tree Physiology
Dilley, David R.	Horticulture	12	0.2	0.8	0	0	0	Postharvest Physiology/Pomology
Douches, David S.	Crop and Soil Sciences	14	0.1	0.9	0	0	0	Potato Breeding/Genetics
Dukelow, W. Richard	Animal Science	12	0	0.25	0	0	0.75	Reproductive Physiology
Dukelow, W. Richard	Physiology	12	0	0.4	0	0	0.6	Reproductive Physiology
Edens, Thomas C.	Entomology	12	0	0.2	0	0	0.8	Resource Economics & Policy
Edens, Thomas C.	Resource Development	12	0	0.8	0	0	0.2	Resource Economics & Policy
Eicher, Carl K.	Agricultural Economics	12	0.35	0.65	0	0	0	International Development
Ellis, Boyd G.	Crop and Soil Sciences	12	0.5	0.5	0	0	0	Soil Chemistry
Emery, Roy S.	Animal Science	12	0.2	0.6	0	0	0.2	Ruminant Nutrition
Ewart, Lowell C.	Horticulture	12	0.1	0.6	0	0	0.3	Floral/Onion Breeding
Ferris, John N.	Agricultural Economics	12	0.15	0.2	0.65	0	0	Outlook & Prices

NAME	DEPARTMENT	RANK	Full Time Employee-Percent				GRANT	JOINT	AREA OF INTEREST
			UNIV. GEN	AES	CES				
Ferris, Theodore A.	Animal Science	13	0	0.2	0.8	0	0	0	Breeding
Flegal, Cal J.	Animal Science	12	0	0.35	0.65	0	0	0	Avian Nutrition/Management
Flore, James A.	Horticulture	12	0.35	0.65	0	0	0	0	Plant Physiology/Pomology
Fogwell, Ralph L.	Animal Science	12	0.4	0.6	0	0	0	0	Physiology
Foster, Eunice F.	Crop and Soil Sciences	13	0.85	0.15	0	0	0	0	Crop Physiology
Fraker, Pamela J.	Biochemistry	12	0	0.44	0	0	0.56	0	Immunology
Freed, Russell D.	Crop and Soil Sciences	12	0.25	0.5	0	0	0.25	0	Int'l Agronomy/Plant Breeding
Fridgen, Joseph D.	Park & Recreation Resources	12	0.4	0.6	0	0	0	0	Leisure/Env. Perc.
Fulbright, Dennis W.	Botany and Plant Pathology	12	0	1	0	0	0	0	Wheat Pathology
Gage, Stuart H.	Entomology	12	0	0.75	0	0	0.25	0	Env. Sys./Ent. Sur.
Garling, Donald L.	Fisheries & Wildlife	12	0.2	0.3	0.5	0	0	0	Aquaculture
Gerrish, John B.	Agricultural Engineering	12	0.5	0.4	0	0	0.1	0	Electronic Robotics
Giacin, Jack R.	Packaging	12	0.5	0.5	0	0	0	0	Packaging
Giesy, John P.	Fisheries & Wildlife	12	0.35	0.55	0	0	0.1	0	Toxicology
Gill, John L.	Animal Science	12	0.5	0.5	0	0	0	0	Statistics Genet.
Grafius, Edward J.	Entomology	12	0	0.5	0.5	0	0	0	Vegetable Insect Eco. Management
Graham-Tomasi, Theodore	Agricultural Economics	13	0.35	0.65	0	0	0	0	Resource Economics
Graham, Richard L.	Human Environment & Design	13	0	0.25	0	0	0.75	0	Interior Design/Hist. Preservation
Gray, J. Ian	Food Science	12	0	0.25	0	0	0.75	0	Food Chemistry
Grimes, Sheila D.	Pathology	14	0	0.36	0	0	0.64	0	Enteric Diseases of Animals
Grukke, Eric A.	Agricultural Engineering	12	0	0.25	0	0	0.75	0	Mass Transfer/Separation/Food Engr.
Grumet, Rebecca	Horticulture	14	0.1	0.9	0	0	0	0	Vegetable Breeding/Genetics
Guyer, Daniel E.	Agricultural Engineering	14	0	0.25	0.75	0	0	0	Fruit/Vegetable Storage
Hammerschmidt, Raymond	Botany and Plant Pathology	12	0	0.9	0	0	0.1	0	Plant Pathology
Hamm, Larry G.	Agricultural Economics	12	0.1	0.25	0.65	0	0	0	Dairy Marketing & Policy
Hancock, James F.	Horticulture	12	0.1	0.9	0	0	0	0	Small Fruit Breeding/Genetics
Hanover, James W.	Forestry	12	0.3	0.7	0	0	0	0	Forest Genetics
Hanson, Eric J.	Horticulture	13	0	0.35	0.65	0	0	0	Pomology Small Fruits
Hanson, Steven D.	Agricultural Economics	14	0.2	0.8	0	0	0	0	Agricultural Finance
Harpstead, Dale D.	Crop and Soil Sciences	12	0.24	0.62	0.14	0	0	0	Int'l Agriculture/Crop Production
Harris, Craig K.	Sociology	13	0	0.5	0	0	0.5	0	Sociology of Agriculture
Harsh, Stephen B.	Agricultural Economics	12	0.15	0.2	0.65	0	0	0	Farm Management
Hart, James B., Jr.	Forestry	13	0.5	0.5	0	0	0	0	Forest Soils
Hart, John H.	Botany and Plant Pathology	12	0	0.5	0	0	0.5	0	Plant Pathology
Hart, L. Patrick	Botany and Plant Pathology	12	0	0.5	0.5	0	0	0	Plant Pathology
Harwood, Richard R.**	Crop and Soil Sciences	12	0.2	0.6	0.2	0	0	0	Sustainable Agriculture
Hauffer, Jonathan B.	Fisheries & Wildlife	12	0.5	0.5	0	0	0	0	Wildlife Ecol. Forest
Hausinger, Robert P.	Microbiology & Public Health	13	0	0.4	0	0	0.6	0	Microbial Physiology
Hausinger, Robert P.	Biochemistry	13	0	0.25	0	0	0.75	0	Biochemistry
Hawkins, David R.	Animal Science	12	0.6	0.2	0	0	0.2	0	Beef Cattle Nutrition
Haynes, Dean L.	Entomology	12	0	0.75	0	0	0.25	0	Insect Population Ecology
Heins, Royal D.	Horticulture	12	0.25	0.75	0	0	0	0	Plant Physiology/Floriculture
Heinze, Kirk L.	Ag & Extension Education	14	0.8	0.2	0	0	0	0	Communication
Helferich, William G.	Food Science	14	0.35	0.65	0	0	0	0	Food Toxicology
Herd, Thomas H.	Large Animal Clinical Sciences	13	0	0.25	0	0	0.75	0	Nutr. & Metabolic Diseases of Cattle
Hernandez, Ruben J.	Packaging	14	0.5	0.5	0	0	0	0	Packaging
Herner, Robert C.	Horticulture	12	0.35	0.65	0	0	0	0	Postharvest Physiology/Veg. Crop
Hesterman, Oran B.	Crop and Soil Sciences	13	0	0.23	0.77	0	0	0	Alfalfa/Forage Production
Hoehn, John P.	Agricultural Economics	13	0.3	0.7	0	0	0	0	Resource Development
Hoerr, Sharon M.	Human Nutrition	13	0	0.25	0	0	0.75	0	Community Nutrition

NAME	DEPARTMENT	RANK	Full Time Employee-Percent				GRANT	JOINT	AREA OF INTEREST
			UNIV. GEN	AES	CES				
Holecek, Donald F.	Park & Recreation Resources	12	0	0.75	0.25	0	0		Resource Economics/Tourism
Holland, John F.	Biochemistry	12	0	0.8	0	0	0.2		Analytical Biochemistry
Holland, Robert E.	Large Animal Clinical Sciences	14	0	0.34	0	0	0.66		Bovine Enteric Disease
Hoopingarner, Roger A.	Entomology	12	0	0.1	0.7	0	0.2		Apiculture & Pollination
Hootman, Seth R.	Physiology	13	0	0.5	0	0	0.5		Cellular Physiology
Howell, Gordon S.	Horticulture	12	0.2	0.8	0	0	0		Plant Physiology/Viticulture/ Enology
Hull, Jerome, Jr.	Horticulture	12	0	0.2	0.8	0	0		Pomology/Physiology & Culture
Iezzoni, Amy F.	Horticulture	13	0.2	0.8	0	0	0		Fruit Breeding/Genetics
Imig, David R.	Family and Child Ecology	13	0	0.25	0	0	0.75		Family Ecology
Ireland, James J.	Animal Science	12	0.2	0.8	0	0	0		Physiology
Jacobs, Lee W.	Crop and Soil Sciences	12	0	0.5	0.5	0	0		Extension Environmental Specialist
Jarosz, Andrew	Botany and Plant Pathology	14	0	0.8	0	0	0.2		Plant Pathology
Johnson, James W.	Entomology	14	0	0.25	0.75	0	0		Fruit Insect Ecology
Johnson, Nan E.	Sociology	12	0	0.5	0	0	0.5		Demography
Jones, Alan L.	Botany and Plant Pathology	12	0	0.5	0.5	0	0		Plant Pathology
Kaguni, Jon M.	Biochemistry	13	0	0.58	0	0	0.42		Molecular Biology
Kakela, Peter J.	Resource Development	12	0.2	0.8	0	0	0		Natural Resources Management
Kaneene, John B.	Large Animal Clinical Sciences	12	0	0.14	0	0	0.86		Epidemiology/Disease Impact
Keefe, Dennis R.	Family and Child Ecology	14	0	0.5	0	0	0.5		Family Economics
Keith, Joanne G.	Family and Child Ecology	12	0	0.1	0.8	0	0.1		Human Develop Family
Kells, James J., Jr.	Crop and Soil Sciences	13	0.15	0.25	0.6	0	0		Weed Science
Kelly, James D.	Crop and Soil Sciences	13	0.25	0.75	0	0	0		Dry Bean Breeding
Kelly, John	Horticulture	12	0.23	0.66	0.11	0	0		Vegetable Composition
Kielbaso, Julian J.	Forestry	12	0.6	0.4	0	0	0		Urban Forestry
Kimball, William J.	Resource Development	12	0.2	0.1	0.7	0	0		Community & Regional Development
Kindel, Paul K.	Biochemistry	12	0.2	0.6	0	0	0.2		Plant Biochemistry
Klug, Michael J.	Microbiology & Public Health	12	0	0.25	0	0	0.75		Microbial Ecology
Knezek, Bernard D.	Crop and Soil Sciences	12	0.5	0.5	0	0	0		Micronutrition Waste Utilization
Kroos, Lee	Biochemistry	14	0.2	0.6	0	0	0.2		Molecular Biology
Kunze, Raymond J.	Crop and Soil Sciences	12	0.38	0.62	0	0	0		Soil Physics
Lacy, Melvyn L.	Botany and Plant Pathology	12	0	0.4	0.5	0	0.1		Plant Pathology
Landis, Douglas A.	Entomology	14	0	0.25	0.75	0	0		Field Forage Insect
Lantagne, Douglas O.	Forestry	13	0	0.2	0.8	0	0		Silviculture
Leefers, Larry A.	Forestry	13	0.5	0.5	0	0	0		Forest Economics
Leep, Richard H.	Crop and Soil Sciences	12	0	0.5	0.5	0	0		Soil Fertilization & Extension
Lee, Julian J. L.	Packaging	13	0.8	0.2	0	0	0		Packaging
Lenski, Richard E.***	Crop and Soil Sciences	12	0.1	0.4	0	0	0.5		Microbial Ecol.& Evolutionary Biol.
Levine, S. Joseph	Ag & Extension Education	12	0.3	0.2	0.5	0	0		Faculty Development
Linz, John E.	Food Science	13	0.5	0.5	0	0	0		Food Microbiology
Lloyd, James W.	Agricultural Economics	14	0	0.2	0	0	0.8		Livestock Prod/Hlth Mgt/Food Safety
Lohr, Luanne	Agricultural Economics	14	0.2	0.25	0.55	0	0		Resource Economics
Loudon, Theodore L.	Agricultural Engineering	12	0	0.3	0.7	0	0		Pollution Management/ Irrigation
Maes, Roger K.	Microbiology & Public Health	12	0	0.03	0	0	0.97		Virology
Manthy, Robert S.	Forestry	12	0.5	0.5	0	0	0		Forest Economics
Mao, Ivan Ling	Animal Science	12	0.3	0.7	0	0	0		Breeding
McDonough, Maureen H.	Forestry	12	0.35	0.15	0.5	0	0		Environmental Interp.
McGilliard, Lon D.	Animal Science	12	0.5	0.5	0	0	0		Breeding
McGroarty, Estelle J.	Biochemistry	12	0.5	0.4	0	0	0.1		Lipid/Protein Biochemistry
McNabb, Clarence D.	Fisheries & Wildlife	12	0.26	0.74	0	0	0		Limnology Ecology
Merkel, Robert A.	Animal Science	12	0.5	0.25	0	0	0.25		Growth Biology
Merkel, Robert A.	Food Science	12	0	0.25	0	0	0.75		Growth Biology

NAME	DEPARTMENT	RANK	Full Time Employee-Percent				GRANT	JOINT	AREA OF INTEREST
			UNIV. GEN	AES	CES				
Merritt, Richard W.	Entomology	12	0	0.5	0	0	0.5		Aquatic Insect Ecology
Merva, George E.	Agricultural Engineering	12	0.5	0.5	0	0	0		Irrigation/Drainage
Miller, Elwyn R.	Animal Science	12	0	0.85	0	0	0.15		Swine Nutrition
Miller, James R.	Entomology	12	0	0.5	0	0	0.5		Insect Physiology
Mokma, Delbert L.	Crop and Soil Sciences	12	0.5	0.5	0	0	0		Soil Classification/Genesis
Moline, Waldimar J.	Crop and Soil Sciences	12	0.25	0.25	0.5	0	0		Forage Physiology
Mrozowski, Timothy	Agricultural Engineering	13	0.8	0.2	0	0	0		Building Construction
Myers, Robert S.	Agricultural Economics	13	0.2	0.8	0	0	0		Int'l Trade & Price Analysis
Nair, Muraleedharan	Horticulture	14	0.5	0.5	0	0	0		Natural Products
Nelson, Charles M.	Park & Recreation Resources	14	0.5	0.25	0.25	0	0		Outdoor Recreation Resource Mgmt.
Oehmke, James F.	Agricultural Economics	13	0.25	0.75	0	0	0		Price Analysis & Research Policy
Ofoli, Robert Y.	Food Science	13	0	0.25	0	0	0.75		Heat/Mass Trsf of Bio Sys/Food Engr
Ofoli, Robert Y.	Agricultural Engineering	13	0.5	0.25	0	0	0.25		Heat/Mass Trsf of Bio Sys/Food Engr
Ohlrogge, John	Botany and Plant Pathology	12	0	0.84	0	0	0.16		Plant Physiology
Olsen, Larry G.	Entomology	13	0	0.1	0.75	0	0.15		Pesticide Education & IPM
Padgett, George A.	Pathology	12	0	0.25	0	0	0.75		Comparative Veterinary Pathology
Partridge, John A.	Food Science	13	0.25	0.25	0.5	0	0		Dairy Technology
Patterson, Jon S.	Pathology	14	0	0.25	0	0	0.75		Vet Pathology/Infectious Dis./Ani.
Penner, Donald	Crop and Soil Sciences	12	0.2	0.8	0	0	0		Crop Physiology
Perry, Ronald L.	Horticulture	13	0	0.5	0.5	0	0		Pomology/Rootstocks
Person, Howard L.	Agricultural Engineering	13	0	0.3	0.7	0	0		Agricultural Structures
Pestka, James J.	Food Science	12	0.5	0.5	0	0	0		Food Microbiology
Peterson, H. Christopher	Agricultural Economics	14	0.6	0.4	0	0	0		Agribusiness
Peyton, R. Benny	Fisheries & Wildlife	12	0.58	0.42	0	0	0		Environmental Education
Pierce, J. Francis	Crop and Soil Sciences	13	0.3	0.7	0	0	0		Soil Management Systems
Potter-Witter, Karen L.	Forestry	13	0.1	0.3	0.6	0	0		Forest Economics
Pregitzer, Kurt S.	Forestry	12	0.4	0.6	0	0	0		Forest Ecology
Preiss, Jack	Biochemistry	12	0.24	0.1	0	0	0.66		Plant Biochemistry
Price, James F.	Food Science	12	0.5	0.5	0	0	0		Meat/Poultry Prod.
Prince, Harold H.	Fisheries & Wildlife	12	0.45	0.55	0	0	0		Water Fowl
Rahn, Allan P.	Animal Science	12	0	0.2	0.65	0	0.15		Management Agricultural Economics
Raikhel, Alexander S.	Entomology	12	0	0.1	0	0	0.9		Insect Physiology
Ramm, Carl W.	Forestry	13	0.4	0.6	0	0	0		Forest Biometrics
Ramsdell, Donald C.	Botany and Plant Pathology	12	0	0.5	0.5	0	0		Plant Virology Pathology
Reddy, C. Adinarayana	Microbiology & Public Health	12	0	0.5	0	0	0.5		Microbial Physiology/Ecology
Render, James A.	Pathology	13	0	0.23	0	0	0.77		Ophthalmic Pathology
Renner, Karen A.	Crop and Soil Sciences	13	0	0.5	0.5	0	0		Weed Science
Ricks, Donald J.	Agricultural Economics	12	0.1	0.2	0.7	0	0		Marketing
Rieke, Paul E.	Crop and Soil Sciences	12	0	0.35	0.5	0	0.15		Turfgrass Management
Ries, Stanley K.	Horticulture	12	0.2	0.8	0	0	0		Plant Physiology/Vegetable
Ritchie, Harlan D.	Animal Science	12	0	0.1	0.9	0	0		Beef Cattle Nutrition Management
Ritchie, Joe T.***	Crop and Soil Sciences	12	0	0	0.5	0.5	0		Soil Physics/Plant Stress
Robertson, G. Phillip	Crop and Soil Sciences	13	0.22	0.38	0	0	0.4		Ecosystem Ecology
Robinson, Norman E.	Large Animal Clinical Sciences	12	0	0.3	0	0	0.7		Respiratory Physiology
Robison, Lindon J.	Agricultural Economics	12	0.35	0.65	0	0	0		Production Economics
Rogers, John N. III.	Crop and Soil Sciences	14	0.25	0.25	0	0	0.5		Turfgrass Management
Romsos, Dale R.	Human Nutrition	12	0	0.7	0	0	0.3		Lipid Metabolism
Rust, Steven	Animal Science	14	0	0.5	0.5	0	0		Beef Feedlot Nutrition
Safir, Gene R.	Botany and Plant Pathology	12	0	0.9	0	0	0.1		Plant Pathology
Sawyer, Carol A.	Human Nutrition	13	0	0.25	0	0	0.75		Food Service Management

NAME	DEPARTMENT	RANK	Full Time Employee-Percent				GRANT	JOINT	AREA OF INTEREST
			UNIV. GEN	AES	CES				
Schemmel, Rachelle A.	Human Nutrition	12	0	0.3	0	0	0.7		Nutrition
Schindler, Melvin	Biochemistry	12	0	0.35	0	0	0.65		Cell Biology
Schmid, A. Allan	Agricultural Economics	12	0.4	0.6	0	0	0		Land Economics/Public Policy
Schultink, Gerhardus	Resource Development	13	0.75	0.25	0	0	0		Natural Resources Management
Schutzki, Robert E.	Horticulture	14	0.15	0.1	0	0	0.75		Landscape Horticulture
Schwab, Gerald D.	Agricultural Economics	12	0.3	0.2	0.5	0	0		Farm Management
Schwarzweiler, Harry K.	Sociology	12	0	0.5	0	0	0.5		Sociology of Agriculture
Sears, Barbara	Botany and Plant Pathology	13	0	0.25	0	0	0.75		Molecular Genetics
Segerlind, Larry J.	Agricultural Engineering	12	0.6	0.4	0	0	0		Finite Element Analysis
Shaffer, James D.	Agricultural Economics	12	0.3	0.7	0	0	0		Marketing/Agricultural Policy
Sink, Kenneth C.	Horticulture	12	0.25	0.75	0	0	0		Genetics/Plant Breeding
Skidmore, Andrew	Animal Science	13	0	0.5	0.5	0	0		Dairy Management
Sleight, Stuart D.	Pathology	12	0	0.5	0	0	0.5		Toxicologic Pathology
Slocum, Ann C.	Human Environment & Design	13	0	0.25	0	0	0.75		Clothing & Textiles
Smith, Denise M.	Food Science	13	0.4	0.6	0	0	0		Poultry/Egg Prod.
Smitley, David R.	Entomology	13	0	0.4	0.6	0	0		Landscape/Ornamental Insect Ecology
Smucker, A.J.M.	Crop and Soil Sciences	12	0.25	0.75	0	0	0		Soil Biophysics
Sniffen, Charles*	Animal Science	12	0.5	0.25	0.25	0	0		Dairy Nutrition/Management
Somerville, Shauna	Botany and Plant Pathology	13	0	0.75	0	0	0.25		Plant Pathology
Song, Won O.	Human Nutrition	13	0	0.25	0	0	0.75		Nutrition
Sontag, M. Suzanne	Human Environment & Design	12	0	0.25	0	0	0.75		Clothing & Textiles
Srivastava, Ajit K.	Agricultural Engineering	12	0.4	0.5	0	0	0.1		Power & Mach. Systems/Hydraulics
Steffe, James F.	Agricultural Engineering	12	0.4	0.35	0	0	0.25		Food Engineering/Rheology
Steffe, James F.	Food Science	12	0	0.25	0	0	0.75		Food Engineering/Rheology
Stehr, Frederick W.	Entomology	12	0	0.5	0	0	0.5		Insect Biocon./System.
Stephens, Christine	Botany and Plant Pathology	12	0	0.39	0.61	0	0		Plant Pathology
Sternquist, Brenda	Human Environment & Design	12	0	0.25	0	0	0.75		Tourism/Merc. Management
Stowe, Howard D.	Large Animal Clinical Sciences	12	0	0.3	0	0	0.7		Clinical Nutrition
Stowe, Howard D.	Animal Science	12	0	0.45	0	0	0.55		Clinical Nutrition
Strasburg, Gale M.	Food Science	14	0.4	0.6	0	0	0		Muscle Biochemistry
Stynes, Daniel J.	Park & Recreation Resources	12	0.5	0.5	0	0	0		System Analysis & Planning
Suchsland, Otto M.	Forestry	12	0.2	0.8	0	0	0		Wood Science
Surbrook, Truman C.	Agricultural Engineering	12	0.15	0.25	0	0	0.6		Electrical Technology
Swinton, Scott M.	Agricultural Economics	14	0.3	0.7	0	0	0		Production Economics
Taylor, William W.	Fisheries & Wildlife	12	0.5	0.5	0	0	0		Fisheries
Thacker, Brad J.	Large Animal Clinical Sciences	13	0	0.39	0	0	0.61		Swine Medicine
Thomashow, Michael F.	Crop and Soil Sciences	12	0.1	0.76	0	0	0.14		Plant & Microbial Molecular Gen.
Thomashow, Michael F.	Microbiology & Public Health	12	0	0.14	0	0	0.86		Plant & Microbial Molecular Genetics
Tiedje, James M.	Microbiology & Public Health	12	0	0.15	0	0	0.85		Soil Microbiology
Tiedje, James M.	Crop and Soil Sciences	12	0.25	0.6	0	0	0.15		Soil Microbiology
Triezenberg, Steven	Biochemistry	14	0	0.2	0	0	0.8		Molecular Biology
Tucker, H. Allen	Animal Science	12	0.2	0.8	0	0	0		Physiology/Lactation
Uebersax, Mark A.	Food Science	12	0.4	0.6	0	0	0		Fruit/Vegetable Products
Uffen, Robert L.	Microbiology & Public Health	12	0	0.49	0	0	0.51		Microbial Physiology
Ullrey, Duane E.	Animal Science	12	0.4	0.6	0	0	0		Animal Nutrition
Ustunol, Zeynep	Food Science	14	0.5	0.5	0	0	0		Dairy Foods
Van Ee, Gary R.	Agricultural Engineering	13	0.25	0.65	0	0	0.1		Chem. Application/Power & Machinery
van Ravenswaay, Eileen O.	Agricultural Economics	12	0.25	0.75	0	0	0		Public Policy/Food Safety
VandeHaar, Michael	Animal Science	13	0.2	0.8	0	0	0		Dairy Nutrition
Vargas, Joseph M., Jr.	Botany and Plant Pathology	12	0	0.5	0.15	0	0.35		Plant Pathology
Velicer, Leland F.	Microbiology & Public Health	12	0	0.3	0	0	0.7		Virology
Vitosh, Maurice L.	Crop and Soil Sciences	12	0	0.3	0.7	0	0		Soil Fertilization Management

NAME	DEPARTMENT	Full Time Employee-Percent					GRANT	JOINT	AREA OF INTEREST
		RANK	UNIV. GEN	AES	CES				
Vlasin, Ray	Resource Development	12	0.3	0.3	0.4	0	0		Community & Regional Development
Walker, Edward D.	Entomology	14	0	0.33	0.33	0	0.34		Medical/Veterinary Entomology
Wang, John L.	Biochemistry	12	0	0.2	0	0	0.8		Cell Biology
Ward, Richard W.	Crop and Soil Sciences	14	0.25	0.75	0	0	0		Wheat Breeding
Warncke, Darryl D.	Crop and Soil Sciences	12	0	0.5	0.5	0	0		Grnhouse/Vegetable Soil Fert.
Watson, J. Throck	Biochemistry	12	0	0.5	0	0	0.5		Analytical Biochemistry
Weber, Michael T.	Agricultural Economics	12	0.2	0.8	0	0	0		International Development
Whalon, Mark E.	Entomology	12	0	0.63	0	0	0.37		Insect Vector Dynam.
Widders, Irvin E.	Horticulture	13	0.25	0.75	0	0	0		Vegetable Physiology
Wilkinson, Robert H.	Agricultural Engineering	13	0.15	0.15	0.6	0	0.1		Human Factors Eng/Chem Application
Winterstein, Scott R.	Fisheries & Wildlife	14	0.5	0.5	0	0	0		Wildlife Biometry
Wishnetsky, Theodore	Food Science	13	0.25	0.25	0.5	0	0		Fruit/Vegetable Products
Yokoyama, Melvin T.	Animal Science	12	0.15	0.85	0	0	0		Animal Nutrition/Microbiology
Zabadal, Thomas J.	Horticulture	13	0	0.5	0.5	0	0		Viticulture
Zabik, Mary E.	Human Nutrition	12	0	0.2	0	0	0.8		Foods
Zabik, Matthew J.	Entomology	12	0	0.1	0	0	0.9		Environmental Toxicology
Zandstra, Bernard H.	Horticulture	12	0	0.25	0.75	0	0		Vegetable Crops
Zile, Maija H.	Human Nutrition	12	0	0.5	0	0	0.5		Nutrition
Zipser, Birgit	Physiology	13	0	0.47	0	0	0.53		Cell Biology
GRAND TOTALS		59.4	133.91	41.99	1.04	59.66			

*Clinton E. Meadows Endowed Chair for Dairy Cattle Research

**C.S. Mott Distinguished Professor of Sustainable Agriculture

***Nowlin Professor for Water Research

****Hannah Professor for Microbial Ecology and Plant Sciences

List of Active AES Projects* by Department

*Signifies Regional Research Project

As of 10-1-91

Agricultural Economics

Project 442	Economics Of Agricultural Development And Change	Johnson, G.L.
Project 996	Assessments Of Consumer Reactions To New Food Products And Marketing Services	Zehner, M.D.
Project 1502	The Performance Of Coordinating Functions And Institutions Of The U.S. Food System	Shaffer, J.D.
Project 1518*	Benefits And Costs In Natural Resource Planning	Hoehn, J.
Project 1519*	Private Strategies, Public Policies, And Food System Performance	vanRavenswaay, E.
Project 1530*	Competition And Change In The Fruit And Vegetable Production And Marketing Systems	Ricks, D.
Project 1566*	The Organization And Performance Of World Food Systems: Implications For U.S. Policy	Shaffer, J.
Project 1567*	Quantifying Long-Run Agricultural Risks And Evaluating Farmer Responses To Risk	Robison, L.
Project 1572	Agricultural And Rural Institutions In Productivity And Growth	Bonnen, J.T.
Project 1576*	Farm Information Systems	Harsh, S.
Project 1588*	Impacts Of Transportation Changes On Agricultural Marketing And Local Communities	Hanson, S.
Project 1592*	Analyses Of Selected Economic Factors Affecting The Long Run Viability Of The Northern Dairy Industry	Hamm, L.
Project 1618*	Modeling Responses Of Growing Pigs	Schwab, G.
Project 1625	Financial Decision Making And Investment In Agriculture	Hanson, S.D.
Project 1635	Collective Action In Agriculture, Natural Resources And Rural Development	Schmid, A.
Project 1650	Effects Of Macroeconomic Fluctuations And Government Stabilization Policies On U.S. Agriculture	Myers, R.J.
Project 1653	The Political Economy Of U.S. Agricultural Research, Commodity, And Trade Policy	Oehmke, J.F.
Project 1660*	Regulatory, Efficiency And Management Issues Affecting Rural Financial Markets	Hanson, S.
Project 1669	Developing Econometric Models For The Agricultural And Food Sectors	Ferris, J.
Project 3131	Agricultural Economics Research: Problems Of Less Developed Countries	Weber, M.
Project 3800	Risk Perception, Measurement And Analysis: Ground Water, Food And Rural Areas	Hoehn, J.

Project 3806	Engineering And Economic Potential For Wet And Dry Manure Products On-Farm And In The Marketplace	Lohr, L.
Project 3807	An Analysis Of The Status Of Michigan Agriculture And Research And Extension Implications	Ferris, J.
Project 3809	Financial Evaluation Of Alternative Production Strategies For Michigan Dairy Farms	Harsh, S.B.
Project 3812	Evaluating Alternative Design And Management Systems For The Michigan Beef Cattle Industry	Black, J.R.

Project 1245*	Improvement Of Thermal Processes For Food	Steffe, J.F.
Project 1361*	Marketing And Delivery Of Quality Cereals And Oilseeds	Bakker-Arkema, F.W.
Project 1427*	Integrated Irrigation Water And Nitrogen Management To Sustain Groundwater Quality And Quantity	Loudon, T.
Project 1495	Laser Raman Spectroscopy Applied To Food And Biochemical Engineering	Berglund, K.A.
Project 1548	Bio-Catalyzed Reactive Extrusion Of Carbohydrates	Ofoli, R.
Project 1564*	The Effect Of Water Table Management On Productivity And Water Quality	Merva, G.
Project 1577	Systems For Value-Added Processing Of Food And Agricultural Products	Srivastava, A.
Project 1578	Water Management And Transport In Biological And Agricultural Systems	Merva, G.
Project 1579	Development Of Machine Concepts For Mechanized Agriculture	Ledebuhr, R.
Project 1580	Storage And Handling Of Agricultural Crops	Brook, R.
Project 1581	Value-Added Quality Control Techniques In The Postharvest Stages Of Fruit And Vegetable Products	Guyer, D.
Project 1582	Sensors And Automatic Control In Agriculture	Gerrish, J.
Project 1583	Development Of Chemical Application Technology For The Agribusiness Industry	Van Ee, G.
Project 1591*	Micro-Irrigation For Optimum Crop Productivity And Minimum Groundwater Contamination	Bralts, V.
Project 1594	Influence Of Environment On Animal Performance And Behavior	Bickert, W.G.
Project 1603	Modeling Machinery Systems For Field Crop Production	Burkhardt, T.H.
Project 1627*	Microirrigation Of Horticultural Crops In Humid Regions	Bralts, V.
Project 1659	Design, Evaluation And Management Of Irrigation Systems	Bralts, V.
Project 3293	Great Lakes Influence On Michigan Climate	Nurnberger, F.
Project 3303	Deposition Efficiency Of Chemical Application	Wilkinson, R.H.
Project 7560	Bioprocessing For Utilization Of Agricultural Raw Materials	Berglund, K.
Project 7574	Animal Waste Management Strategies For Michigan	Von Bernuth, R.D.
Project 7576	Water Quality Impacts Of Water Table Management	Belcher, H.W.

Agricultural Engineering

Agriculture and Extension Education

Project 3314	Educational Perspectives Of Agricultural Researchers And Scientists	Levine, S.J.
Project 3316	Assessing Retailer/Consumer Perceptions And Use Of Michigan-Produced Commodities	Heinze, K.L.

Anatomy

Project 6860	Peptidergic Mediation Of Arthritis/Laminitis Disease	Bowker, R.M.
--------------	---	--------------

Animal Science

Project 44	Biological And Biochemical Effects Of Certain Nutritional And Physical Factors In Swine	Miller, E.R.
Project 102*	Improving Dairy Cattle Genetically	McGilliard, L.D.
Project 859	Hormonal Control Of Reproduction In Cattle, Sheep And Swine	Dukelow, W.R.
Project 1039	Fur Animal Studies (mink)	Aulerich, R.J.
Project 1156*	Dairy Herd Management Strategies For Improved Decision Making And Profitability	Mellenburger, R.
Project 1163	Factors Controlling Growth And Lactation	Tucker, H.A.
Project 1178	Breeding Strategies To Maximize Economic Gain In Dairy Cattle Production	Mao, I.L.
Project 1182*	Factors Regulating Protein Synthesis, Degradation, And Growth In Skeletal Muscle	Bergen, W.G.
Project 1196*	Methods For Improvement Of Fertility In Cows Postpartum	Fogwell, R.L.
Project 1226	Protein And Amino Acid Nutrition And Metabolism In Ruminants	Bergen, W.G.
Project 1278	Improvement Of Design And Analysis Of Animal Experiments	Gill, J.L.
Project 1318	Utilization Of Fiber By Ruminants	Cook, R.M.
Project 1437	Increasing Milk Solids Secretion	Emery, R.S.
Project 1450	Poultry Disease Studies Of Current Significance	Chang, T.
Project 1521*	Metabolic Relationships In Supply Of Nutrients For Lactating Cows	Emery, R.
Project 1528*	Skeletal Problems In Poultry	Flegal, C.
Project 1573	The Physiological Role Of Ovarian Inhibins	Ireland, J.J.
Project 1575*	Increasing Prolificacy In Sheep And Its Impact On Nutritional Needs	Benson, M.
Project 1596*	The Genetics Of Body Composition In Beef	Ritchie, H.
Project 1604	Nutritional Regulation Of Protein Production In Ruminants	VandeHaar, M.J.
Project 1616	Regulation Of Skeletal Muscle Growth By Sex Steroids And Growth Modifiers	Merkel, R.A.
Project 1622	Automated In-Vitro Test System For Chemical Toxicity In Mammalian Sperm	Chou, K.
Project 1639	Comparative Nutrition And Physiology Of Wild Animals	Ullrey, D.E.
Project 1643	Microbial Ecology Of The Rumen, Gastrointestinal Tract, And Ensiled Feeds	Yokoyama, M.T.
Project 1645	Using Traditional And Non-Traditional Pedigree Information To Select Bulls For AI Sampling Programs	Ferris, T.A.
Project 1652*	Assessment Of Technological Changes In Forage-Dairy Production Systems Using Computer Modelling	Sniffen, C.J.

Animal Science

(continued)

Project 3014	Maximum Utilization Of Michigan-Grown Feedstuffs For Growing And Finishing Cattle	Rust, S.R.
Project 3047	Feeding And Management Regimes For Efficient Utilization Of Michigan Feedstuffs By Beef Cattle	Ritchie, H.D.
Project 3117	Nutrition And Physiology Of The Horse	Ullrey, D.E.
Project 3217	The Fate And Biological Effects Of Xenobiotics In Farm Animal Species	Bursian, S.
Project 3304	Basic And Applied Studies Utilizing Domestic And Semi-Domestic Avian Species As Research Animals	Balander, R.
Project 3307	Optimizing The Nutritional Utilization Of Forages By Dairy Cattle	Allen, M.S.
Project 6841	Electronic Monitors For Detection Of Health In Stressed Cattle	Rust, S.
Project 6845	Characterizations Of Shifts In Cecal Bacterial Fermentation Induced By Growth Promoting Antibiotics	Yokoyama, M.
Project 6852	Construction Of Recombinant Marek's Disease Herpesvirus Genome For Vaccine Development & Improvement	Coussens, P.
Project 6864	Insulin-Like Growth Factor I And Reproductive Health	VandeHaar, M.J.
Project 6868	Preovulatory Follicular Events Mediate Adverse Effects Of Energy Deficit On Bovine Luteal Function	Fogwell, R.
Project 7549	Photoperiod Regulation Of Lactation	Tucker, H.A.
Project 7568	Development Of Recombinant Marek's Disease Vaccine Virus	Coussens, P.M.
Project 8058	Regulatory Regions Of Marek's Disease Virus	Coussens, P.
Project 8073	The Role Of Inhibins In Ovarian Function	Ireland, J.J.
Project 8102	Aminergic Regulation Of Growth Hormone Secretion In Cattle	Tucker, H.A.
Project 8104	Functional Role Of Bacteriophages In The Rumen Ecosystem	Yokoyama, M.T.

Biochemistry

Project 1219	Plant Respiration	Tolbert, N.E.
Project 1223	The Interrelationships Between Dietary Zinc Status And Immune Function	Fraker, P.
Project 1290*	Regulation Of Photosynthetic Processes	Tolbert, N.E.
Project 1503	Metabolism Of Starch Synthesis	Preiss, J.
Project 1543	Role Of Carnitine Acyltransferases In The Regulation Of Cellular Metabolism	Bieber, L.
Project 1546	Development Of A Computerized Fluorimeter And Its Application To Chemical And Biochemical Problems	Holland, J.
Project 1547	Development Of Quantitative Vapor Phase Methodology For Steroids	Watson, J.
Project 1586	Molecular Mechanisms Of Action Of Halogenated Aromatic Hydrocarbons	Denison, M.
Project 1598	Temporal And Spatial Gene Regulation In <i>Bacillus Subtilis</i>	Kroos, L.R.
Project 1601	DNA Replication And Its Regulation In <i>Escherichia Coli</i>	Kaguni, J.
Project 1608	Activation Of Gene Expression By A Herpes Simplex Virion Protein	Triezenberg, S.
Project 1609	Expression Of Carbohydrate Binding Protein 35 In Fibroblasts As A Function Of Replicative Life Span	Anderson, R.
Project 1610	Transcription Factors That Bind To RNA Polymerase II	Burton, Z.F.
Project 1614	Interaction Of <i>Rhizobium</i> With Soybean Cells	Wang, J.
Project 1621	Transmembrane And Intracellular Signalling In Soybean Cells	Schindler, M.

Biochemistry

(continued)

Project 1668	Detection And Characterization Of Two Different Structural Types Of Pectic Polysaccharides In Plants	Kindel, P.K.
Project 8054	Alteration Of Immune Development By Gestational Zinc Deprivation	Fraker, P.
Project 8065	Soybean Nodule Glutamine: PRPP Amidotransferase: Purification And Properties	Deits, T.
Project 8070	Role Of Carnitine And Acetylcarnitine In Host Defense Processes Of Human MNP	Bieber, L.L.
Project 8094	Cell Wall Proteins Of The Cereals	Kieliszewski, M.J.

Botany & Plant Pathology

Project 1125*	Virus And Virus-Like Diseases Of Woody, Deciduous Fruit Crops	Ramsdell, D.C.
Project 1176	Diseases Of Woody Plants - Biology And Control	Hart, J.H.
Project 1206*	Biological Control Of Soil-Borne Plant Pathogens In Integrated Crop Management Systems	Safir, G.
Project 1259*	Occurrence Of Mycotoxins And The Implications To Animal And Human Health	Hart, L.P.
Project 1408*	Biological Improvement Of Chestnut (Castanea, Sp.)	Fulbright, D.W.
Project 1491	Genetics, Taxonomy And Biology Of Fungal Pathogens Of Economics Crops: Cytospora & Fusarium	Adams, G.
Project 1499	Environmental And Chemical Deterimants Of VA Mycorrhizal Root Colonization	Safir, G.R.
Project 1513	Hybrid Variegation In Phaseolus Vulgaris	Sears, B.B.
Project 1533	Genetic Engineering Of Oilseed Crops	Ohlrogge, J.
Project 1562	Physiology Of Resistance And Induced Resistance To Disease In Potato	Hammerschmidt, R.
Project 1648	Mechanisms Of Disease Resistance In Plants	Somerville, S.
Project 1655	Molecular Analysis Of The Aphid Transmission Of Pea Enation Mosaic	De Zoeten, G.A.
Project 1656	Identification Of Plant Virus Host Specificity Determinents	Allison, R.F.
Project 1657	Diseases Of Muck Vegetables, Potatoes, And Mint Crops And Their Control	Lacy, M.L.
Project 1662	Virulence Inhibition Factors And Their Effects On Plant Pathogen Populations	Fulbright, D.
Project 3183	Diseases Of Tree Fruit Crops And Their Control	Jones, A.L.
Project 3275	Stress Factors Contributing To The Asparagus Decline Syndrome And Replant Problem	Stephens, C.
Project 3315	Etiology, Epidemiology And Control Of Fungal Diseases Of Small Fruit	Ramsdell, D.
Project 3317	Management Of Turfgrass Diseases	Vargas, J.M.
Project 3805	No Carcinogen/Zero Pesticide Residue Production System For Apples	Jones, A.L.
Project 7547	An Integrated Approach To The Control Of Blueberry Virus Diseases	Ramsdell, D.
Project 7548	Asparagus Decline Syndrome And Replant Problem In Michigan	Stephens, C.
Project 7552	Development Of Fusarium Yellows Disease Resistance In Celery	Lacy, M.
Project 8059	Center For Genetic And Biochemical Alteration Of Plant Lipids And Starch	Ohlrogge, J.
Project 8075	Characterization Of Induced Systemic Resistance Signal Molecules	Hammerschmidt, R.
Project 8087	Characterization Of Induced Systemic Resistance Signal Molecules	Hammerschmidt, R.
Project 8091	Population Biology Of Leucostoma-Causing Canker Of Stone Fruit Trees	Adams, G.C.

Project 8092	Physiological Basis For Tissue Specificity Of Plant-Pathogenic MLOs	Klomparens, K.L.
Project 8093	Identification Of Molecular Markers Adjacent To The M1-a Locus In Barley	Somerville, S.
Project 8099	Molecular Genetic Analysis Of Plant Virus-Host Interactions	Traynor, P.L.

Botany & Plant Pathology

(continued)

Project 8083	Charge Separation And Stabilization In Chloroplast Photosystem II	Babcock, G.T.
--------------	--	---------------

Chemistry

Project 7572	Development Of High-Performance Cellulose Fiber Reinforced Cement Composites	Soroushian, P.
--------------	---	----------------

Civil and Environmental Engineering

Project 319	Classification, Genesis And Evaluation Of Michigan Soils	Mokma, D.L.
Project 569	Breeding And Testing Small Grain Cultivars In Michigan	Freed, R.D.
Project 908	Fundamental Factors In Cultural And Chemical Weed Control, Weed Competition, And Weed Life Cycles	Renner, K.A.
Project 1103	Adsorption, Transformation And Release Of Inorganic Nutrients By Soils	Ellis, B.G.
Project 1124	Efficient Use Of Plant Nutrients	Vitosh, M.L.
Project 1462*	Soil Productivity Erosion	Mokma, D.
Project 1471*	Chemistry And Bioavailability Of Waste Constituents In Soils	Jacobs, L.W.
Project 1492	Modeling Crop Responses And Environmental Factors Related To Shortage And Excesses Of Water	Ritchie, J.
Project 1526	Role Of Microorganisms In Plant Nutrition	Paul, E.
Project 1529*	Seed Production Of Breeding Lines Of Insect-Pollinated Forage Legumes	Leep, R.
Project 1538	Harvest And Storability Of Sugarbeet Roots	Theurer, J.
Project 1561*	Forage Protein Characterization And Utilization For Beef Cattle	Hesterman, O.
Project 1568	Plant Biotechnology: Molecular Approaches To Improve Plant Stress Tolerance	Thomashow, M.F.
Project 1569*	Conservation Tillage Systems	Pierce, F.
Project 1574	Movement And Degradation Of Organic Contaminants In Soils And Sediments	Boyd, S.
Project 1587	The Physiology And Biochemistry Of Herbicide Action, Selectivity And Degradation	Penner, D.
Project 1595	Impact Absorption, Traction, And Wear Tolerance Investigations On Turf And Soil Surfaces	Rogers, J.N.
Project 1600	Microbial Ecology Of Denitrification And Biodegradation	Tiedje, J.M.
Project 1615	Influence Of Mineral-Organic Interactions On Colloid And Pollutant Transport Properties	Anderson, S.J.
Project 1617*	Biological And Ecological Basis For A Weed Management Model To Reduce Herbicide Use In Corn	Kells, J.
Project 1619*	Environmental And Genotypic Control Of Assimilate Allocation In Grain Crops	Smucker, A.J.

Crop & Soil Sciences

Crop & Soil Sciences

(continued)

Project 1626	Potato Breeding And Genetics	Douches, D.S.
Project 1630*	Nutrient Management To Sustain Productivity While Protecting Surface And Groundwater Quality	Ellis, B.
Project 1654	Genetic Improvement Of Beans (<i>Phaseolus Vulgaris</i> L.) For Yield, Pest Resistance, And Food Value	Kelly, J.D.
Project 1661	Potential For Groundwater Contamination From Pesticides And Nutrients Used On Turf	Branham, B.E.
Project 1670	Assessment And Simulation Of The Water, Nutrient And Agricultural Chemical Dynamics In Field Crop Production	Ritchie, J.
Project 3122	Development And Correlation Of Soil Test Procedures With Crop Yields And Plant Nutrient Contents	Warncke, D.D.
Project 3128	Systems Of Cropping	Christenson, D.R.
Project 3253	Computer Simulation Of Soil Water Infiltration Into Michigan Soils	Kunze, R.J.
Project 3260	Crop Management Studies In Northern Michigan	Leep, R.H.
Project 3282	Enhancing Profitability And Sustainability Of Crop Production Systems For Michigan Farmers	Hesterman, O.
Project 3295	Cultural And Management Factors Affecting Potato Quality	Chase, R.
Project 3296	Weed Management As A Component Of Field Crop Production Systems In Michigan	Kells, J.
Project 3300	Design Of Experiments	Cress, C.
Project 3301	Soils And Landscapes Of Michigan	Crum, J.R.
Project 3302	Management Of Organic Soils For Crop Production	Warncke, D.
Project 3313	Cultivation And Topdressing Effects On Turf And Soil	Rieke, P.E.
Project 3319	Wheat Breeding And Genetics	Ward, R.W.
Project 3324	Strategies Of Drought Resistance In Beans (<i>Phaseolus Vulgaris</i> L.)	Foster, E.E.
Project 3802	Development Of Production, Marketing And Utilization Of Canola As An Alternative Crop In Michigan	Copeland, L.
Project 3808	Development Of Systems To Meet Environmental Constraints Of Cash Crop Production In The 1990s	Pierce, F.
Project 3810	Evaluating Grasses And Grass-Legume Mixtures For Sustainable And Efficient Forage Production	Moline, W.
Project 3811	User-Friendly Methodology For Managing Animal Manure And Fertilizer Nutrients Within Livestock And Crop Production Enterprises	Jacobs, L.W.
Project 7543	Resource-Efficient Cropping Systems For Dry Bean And Sugar Beet Production	Christenson, D.
Project 7545	Improved Production And Utilization Technology For Michigan Potatoes	Douches, D.
Project 7564	Stratification And Fate Of N Within Soil Profiles: Management-Induced Changes	Pierce, F.J.
Project 7566	Assessment And Modeling Of Nitrate Leaching Under Conventional And Organically Managed Corn	Paul, E.A.
Project 8060	Cold Adaptation In <i>Arabidopsis Thaliana</i>	Thomashow, M.F.
Project 8071	Regulation Of Gene Expression In Response To Cold Temperatures	Thomashow, M.F.

Entomology

Project 401	Apiculture And Crop Pollination	Hoopingarner, R.
Project 1067*	Variables In Agricultural Weather Information Systems	Gage, S.

Entomology

(continued)

Project 1187	Biological Control Of Selected Insect Pests In Michigan	Stehr, F.W.
Project 1213	Management Of Defoliating Insects And Related Secondary Insects	Scriber, M.
Project 1294*	Black Fly Damage Thresholds, Biology And Control	Merritt, R.W.
Project 1331*	Interaction Of Nematode-Host Variability And Abiotic Factors On Crop Losses	Bird, G.W.
Project 1482	Biotic And Abiotic Stress Interactions Between Insects And Their Host Plants	Gage, S.
Project 1488*	The Gypsy Moth And Its Natural Enemies: Behavioral And Population Determinants	Scriber, M.
Project 1537	Insect Vectors Of Plant Diseases: Identification, Characterization And Management	Whalon, M.
Project 1563*	Spatial Dynamics Of Leafhopper Pests And Their Management On Alfalfa	Whalon, M.
Project 1584*	Design And Evaluation Of New Approaches For The Management Of Plant-Parasitic Nematodes	Bird, G.
Project 1606	Management Of Insect And Mite Pests Of Greenhouse, Landscape, And Turfgrass	Smitley, D.
Project 1611	Insect Management: An Ecosystem Analysis Approach For Preventive Pest Management	Haynes, D.L.
Project 1613	Factors Regulating Insect Host-Plant Colonization	Miller, J.R.
Project 1640*	Integrated Crop Management Effects On Stalk-Boring Lepidoptera	Scriber, M.
Project 1644	Plant Chemical Defenses, Insect Counteradaptations And Factors Affecting Gene Flow In A Hybrid Zone	Scriber, M.
Project 1663	Biology And Management Of Insect Pests Of Vegetable Crops	Grafius, E.
Project 3269	Using Behavior To Reduce Non-Target Impact Of Pesticides	Ayers, G.
Project 3294	Michigan State University Insect Museum	Stehr, F.
Project 3299	Management Of Field And Forage Crop Insects In Michigan	Landis, D.
Project 3320	Biology And Management Of Nematodes Associated With Michigan Agriculture And Natural Resources	Bird, G.W.
Project 7558	Dispersal And Insecticide Resistance In The Colorado Potato Beetle	Grafius, E.J.
Project 8072	Influence Of Host Suitability And Phenological Constraints On Host Use Patterns	Scriber, M.
Project 8074	Isolation, Identification, And Behavioral Effects Of Onion Fly Sex Peptide	Miller, J.R.
Project 8088	Effect Of Carbohydrates On Predaceous Activity Of The Allegheny Mound Ant	Bristow, C.M.

Project 1500	Assessing The Physical And Emotional Consequences Of Financial Distress In Michigan Farm Families	Soderman, A.
Project 1507*	Family Resource Utilization As A Factor In Determining Economic Well-Being Of Rural Families	Keefe, D.
Project 1523*	At-Home-Income-Generation: Impact On Management, Productivity And Stability In Rural/Urban Families	Walker, R.
Project 1590*	Housing And Locational Decisions Of The Maturing Population: Opportunities For The Western Region	Schiamberg, L.
Project 3801	Economic, Social And Personal Well-Being Of Michigan Farm Families In Transition	Walker, R.

Family & Child Ecology

Fisheries & Wildlife

Project 940	Ecological Relationships Of Pesticides, Radionuclides, And Nutrients With Organisms In Aquatic Community	Kevern, N.R.
Project 1414	Effects Of Toxic Chemicals On Aquatic Systems	Giesy, J.P.
Project 1531	Modeling Avian Population Dynamics: Juvenile Dispersal Patterns And Reproductive Strategies	Winterstein, S.
Project 1540	Ecology, Population Dynamics And Management Of Michigan Fishes And Their Food Organisms	Taylor, W.
Project 1552	Wildlife Responses To Forest Management In Michigan	Haufler, J.
Project 1624*	Avian Species In Diverted Farmland	Winterstein, S.
Project 1646	Wildlife Responses To Habitat Management	Campa, H.
Project 3077	Environmental And Genetic Components Of Reproduction In Bird Populations	Prince, H.H.
Project 3248	Improving Productive Public Involvement In Agriculture And Natural Resource Problem Solving	Peyton, R.B.
Project 3254	Development Of Commercial Fish Culture Techniques For Michigan	Garling, D.
Project 3288	Habitat And Its Effects On The Ecology And Management Of Michigan Fishes	Coon, T.
Project 3292	Food Resource Base For Young-Of-The-Year Fish Production In Great Lakes Wetlands	McNabb, C.D.
Project 3804	Economic Feasibility Of Culturing Fish Species That Offer Economic Potential In Michigan	McNabb, C.D.
Project 7557	Regional Aquaculture Center	McNabb, C.D.
Project 10001	Regional Aquaculture Center	McNabb, C.D.
Project 10002	Regional Aquaculture Center	McNabb, C.D.
Project 10003	Regional Aquaculture Center	McNabb, C.D.

Food Science & Human Nutrition

Project 1174*	Food Quality Changes And Energy Consumption Associated With Thermal Processing In Foodservice Systems	Zabik, M.E.
Project 1193	Dietary And Physiological Factors Affecting Bioavailability And Utilization Of Nutrients	Chenoweth, W.C.
Project 1209	Quality Of Fresh And Processed Meat Products	Price, J.E.
Project 1211	Dietary Fat/Carbohydrate Relationships To Selected Health Parameters	Schemmel, R.A.
Project 1323	Process Efficiency, Quality, And Nutrient Composition Of Fruit And Vegetable Products	Uebersax, M.A.
Project 1344	The Effects Of Processing, Cooking And Storage On The Acceptability And Safety Of Food Products	Gray, J.I.
Project 1413	Metabolism And Function Of Vitamin A	Zile, M.H.
Project 1419	Processing Treatments Influencing Functional Properties And Utilization Of Muscle Foods	Booren, A.M.
Project 1444*	Health Maintenance Aspects Of Dietary Recommendations Designed To Modify Lipid Metabolism	Romsos, D.
Project 1448	Microbial Food-Borne Diseases	Pestka, J.J.
Project 1478*	Genetic Improvement Of Beans (<i>Phaseolus Vulgaris</i> L.) For Yield, Pest Resistance And Food Value	Uebersax, M.A.
Project 1504	Evaluation Of Nutritional Status And Food Behavior	Hoerr, S.

Food Science & Human Nutrition

(continued)

Project 1506*	Development Of New Processes And Technologies For The Processing Of Poultry Products	Smith, D.M.
Project 1511	Development Of Technology For The Genetic Engineering Of The Filamentous Fungi: Mucor And Rhizopus	Linz, J.E.
Project 1512	Mass Transfer And Separations In Bioprocesses	Grulke, E.
Project 1524*	Changing Patterns Of Food Demand And Consumption Behavior	Zabik, M.
Project 1525	Cleaning Of Membrane Separation And General Processing Systems In The Dairy Industry	Partridge, J.
Project 1527	Cook/Chill Foodservice Systems: Shelf Life Of Precooked Chilled Foods	Sawyer, C.
Project 1532*	Functional Properties Of Food Proteins	Smith, D.
Project 1597	Food Toxicology And Safety	Helferich, W.
Project 1599	Regulation Of Calcium In Muscle Sarcoplasm	Strasburg, G.M.
Project 1623	Comparative Aspects Of Nutrition And Lipid Metabolism	Romsos, D.
Project 1632	Improving The Quality And Safety Of Value-Added Meat And Poultry Products	Smith, D.M.
Project 1649*	Behavioral And Health Factors That Influence The Food Consumption Of Young Adults	Hoerr, S.
Project 1664	Manufacturing And Quality Of Reduced-Fat And Reduced-Cholesterol Dairy Foods	Ustunol, Z.
Project 1665	Assessment Of Nutritional Status Of Individual And Population – Pantothenic Acid Nutriture And Dietary Assessment	Song, W.
Project 3092	Effect Of Raw Material, Processing And Storage Factors On Food Cost And Quality	Wishnetsky, T.
Project 3221	Processing And Quality Evaluation Of Fruits And Vegetables	Cash, J.N.
Project 3276	Food Industry Institute	Haines, W.
Project 3298	Relationship Of Diet And Cancer	Bennink, M.
Project 6859	Prevention Of Mycotoxicoes By Specific Stimulation Of Intestinal Immune System	Pestka, J. J.
Project 6866	Cardiac Ca²⁺ + Channel Defect In Malignant Hyperthermia	Strasburg, G.M.
Project 8064	Metabolism And Function Of Retinoic Acid In The Small Intestine	Zile, M.
Project 8089	Metabolism And Function Of Retinoic Acid In Quail Embryogenesis	Zile, M.H.

Forestry

Project 978	Financial Evaluation Of Forest Management Opportunities	Potter, K.
Project 1048	The Hygroscopic Dimensional Changes Of Wood And Wood Products	Suchsland, O.M.
Project 1148	Development Of Techniques In Forest Biometry	Ramm, C.W.
Project 1198	Biology Of Terpenes In Woody Plants	Hanover, J.W.
Project 1207	Silviculture And Physiology Of Michigan Tree Species Grown Under Intensive Management	Dickmann, D.I.
Project 1432	Public Knowledge And Attitudes Concerning Forest Management Practices	McDonough, M.
Project 1438	Enhancing Amenity Values Of Urban And Rural Trees	Kielbaso, J.J.
Project 1447*	Chemistry Of Atmospheric Deposition – Effects On Agriculture, Forestry, Surface Waters And Material	Hart, J.B.
Project 1487	Development Of Tissue Culture Systems For Genetic Improvement Of Woody Plants	Keathley, D.E.

Forestry

(continued)

Project 1494	Intensive Management For The Regeneration Of Conifers And Hardwoods In Michigan	Lantagne, D.
Project 1509	Environmental And Genetic Control Of Carbon Allocation And Chemical Defense In Trees	Pregitzer, K.
Project 1535	Forest Resources Planning	Leefers, L.
Project 1551	Ecological Factors Affecting Tree Productivity	Pregitzer, K.
Project 3157	Accelerating Tree Growth By Manipulating Genetic And Cultural Factors	Hanover, J.W.
Project 7542	Advanced Technology Applications To Eastern Hardwoods Utilization	Huber, H.
Project 7555	Advanced Technology Applications To Eastern Hardwood Utilization	Huber, H.
Project 7565	Advanced Technology Applications To Eastern Hardwood Utilization	Hanover, J.
Project 7571	Advanced Technology Applications Of Eastern Hardwood Utilization	Suchsland, O.
Project 7573	Advanced Technology Applications To Eastern Hardwood Utilization	Hanover, J.W.
Project 8043	Resin Distribution And Horizontal Density Effects On Wood Composite Durability	Suchsland, O.
Project 8061	Genetic Structure And Adaptation Of Natural Populations Of Spruce	Hanover, J.W.
Project 8079	Atmospheric CO₂ And Feedback In The Plant-Soil System	Pregitzer, K.

Geography

Project 3279	Protective Management Methods For Michigan's Coastal Sand Dunes	Chubb, M.
--------------	--	-----------

Horticulture

Project 935	Effects Of Biologically Active Chemicals On Plant Growth And Development	Bukovac, M.J.
Project 1153*	Quality Maintenance And Nutritive Aspects Of Vegetables During Processing And Storage	Herner, R.C.
Project 1155*	Postharvest Physiology Of Fruits	Dilley, D.R.
Project 1222*	Introduction, Multiplication, Evaluation, Preservation, Documentation, Enhancement, Distribution And Utilization Of Plant Germplasm	Iezzoni, A.F.
Project 1272	Physiology Of Carbon Balance In Horticulture Crops	Flore, J.A.
Project 1305*	Rootstock And Interstem Effects On Pome And Stone Fruit	Perry, R.
Project 1325	Sustainable Weed Control And Crop Nutrition On Organic Soil Vegetables	Zandstra, B.H.
Project 1386	Breeding And Genetics Of Floriculture Plants	Ewart, L.C.
Project 1428	Sour Cherry And Peach Breeding And Genetics	Iezzoni, A.F.
Project 1461*	Freeze Damage And Protection Of Fruit And Nut Crops	Howell, G.S.
Project 1468	Mineral Nutrition Of Vegetable Crops	Widders, I. E.
Project 1517	Optimization Of The Root Zone Environment In Greenhouse Crop Production	Biernbaum, J.
Project 1544	Manipulation And Transfer Of Nuclear And Organelle Genes In Vegetable Cultivars By Cell Fusion	Sink, K.
Project 1549	Application Of Molecular Genetic Approaches To Vegetable Crop Improvement	Grumet, R.
Project 1559*	Engineering Greenhouse And Other Controlled Environment Plant Production Systems	Heins, R.D.

Horticulture

(continued)

Project 1589	Environmental And Physiological Variables Effect On Growth, Quality And Marketability Of Garden Crops	Carlson, W.H.
Project 1607	Physiological Adaptation And Cultural Manipulation Of Woody Plant Systems	Schutzki, R.
Project 1636	Quality Maintenance Of Horticultural Crops During Handling And Storage	Herner, R.C.
Project 1637	Postharvest Physiology Of Fruits	Dilley, D.R.
Project 1638	Rootstock, Root System And Soil Effects On Fruit Crops Growth And Fruiting	Perry, R.L.
Project 3012	Chemical Regulation Of Plant Growth, Quality And Yield	Ries, S.K.
Project 3218	Manage Viticulture To Maximize Yield/Fruit/Process Quality And Adaptation To Environmental Stress	Howell, G.S.
Project 3227	Adaptation Of Cultivars And Cultural Practices To Michigan Conditions	Kesner, C.D.
Project 3247	Breeding And Selection Of New Grape Cultivars For Michigan	Hancock, J.F.
Project 3266	Breeding And Genetics Of Onions	Ewart, L.C.
Project 3272	Physiological And Environmental Factors Influencing Growth And Development Of Flower Crops	Heins, R.D.
Project 3281	Efficient Use Of Fertilizer In Fruit Production	Hanson, E.
Project 3305	Viticultural Practices For Mechanical Pruning And Crop Control Of Concord And Niagara Grapevines	Zabadal, T.
Project 3308	Physiological And Genetic Factors Influencing The Content And Bioavailability Of Nutrients In Vegetable Crops	Kelly, J.
Project 3309	Controlling Flowering, Fruit Set And Fruit Size In Tree Fruits	Dennis, F.
Project 3310	Preserving Postharvest Quality Of Fruits And Vegetables	Beaudry, R.
Project 3311	Development Of Tree Fruit Cultural Practices To Improve Fruit Quality And Productivity	Hull, J.
Project 3323	Genetic Improvement Of Strawberries And Blueberries	Hancock, J.F.
Project 7544	Apple Quality Improvement Through Production, Storage And Distribution Technology	Dilley, D.
Project 7546	Factors Causing The Decline Of Stone Fruit Trees With Emphasis On Sweet Cherry Under Michigan Conditions	Flore, J.
Project 8097	Inhibition Of Flowering In Apple: Role Of Gibberellin Metabolism	Dennis, E.G.

Project 3306	Vulnerable Children, Tools For Communities To Monitor Conditions Affecting Youth Development	Kerth, J.
--------------	---	-----------

Human Ecology

Project 1442*	Reducing Pesticide Exposure Of Applicators Through Improved Clothing Design And Care	Slocum, A.
Project 1565*	Rural Retailing: Impact Of Change On Consumer And Community	Sternquist, B.
Project 3256	Toward Achieving Michigan's Rural Employment Potential: The Role Of Resort Area Retailing	Sternquist, B.
Project 3261	Family Adaptation To Changing Resources And Environments: Improving Quality Of Life In Rural Areas	Sontag, M.S.

Human Environment & Design

Human Environment & Design

(continued)

Project 3284	Upper Michigan Tourism: Market Segmentation And Tourist Consumer Behavior Modeling	Sternquist, B.
Project 3286	Residential Architecture In 19th Century Michigan	Graham, R.

Large Animal Clinical Sciences

Project 1417*	Bovine Respiratory Diseases: Risk Factors, Pathogens, Diagnosis And Management	Baker, J.
Project 1550	Bovine Respiratory Disease: Risk Factors, Immunology, Pathogenesis And Control	Baker, J.
Project 1631	Assessment Of Selenium, Vitamin A, Vitamin E And Other Metabolites In Animals For Diagnostic Purposes	Stowe, H.D.
Project 6805	Bovine Leukemia Virus Infection In Calves	Kaneene, J. B.
Project 6848	Immunogenicity Studies Using Purified Outer Membranes Of <i>Haemophilus Pleuropneumoniae</i>	Thacker, B.
Project 6855	Infectious Causes Of Diarrhea Among Neonatal Farm Animals	Holland, R.
Project 6856	The Influence Of Choline Deficiency On The Development Of Ketosis And Fatty Liver In Dairy Cows	Herdt, T.H.
Project 6857	Epidemiological Study Of Food Safety Concerns Of <i>E. Coli</i> 0157:h7	Kaneene, J.B.
Project 6862	The Effect Of Use Of A Platelet-Activating Factor Antagonist (WEB 2086) In Equine Large Colon Torsion	Wilson, D.V.
Project 6865	Transvaginal/Transuterine Aspiration Of Chorioallantoic Fluid From Early Bovine Pregnancies	Sprecher, D.
Project 6869	Evaluation Of Dairy Reproductive Health Indicators	Lloyd, J.W.
Project 7561	Information Management, Systems Modeling And Computer Simulation For Health Management In Hogs	Lloyd, J.
Project 7569	Mechanism Of Furosemide's Action On Horse Airways	Robinson, N.E.

Mechanical Engineering

Project 8084	Wind-Aided Flame Spread Over Wood	Wichman, I.S.
--------------	--	---------------

Microbiology & Public Health

Project 1314	Symbiotic Infection Of Legume Roots By Nitrogen-Fixing Rhizobium	Dazzo, F.B.
Project 1371	An In Vivo Model To Study Latent Psuedorabies Virus Infections	Maes, R.K.
Project 1453	Structure/Function Relationships In Chicken Globin And Histone Genes	Dodgson, J.
Project 1481	Characterization And Inhibition Of Bacterial Urease	Hausinger, R. P.
Project 1557	Molecular Regulation Of Strptomycetes Antibiotic Synthesis	Champness, W.
Project 1593*	Advanced Technologies For The Genetic Improvement Of Poultry	Dodgson, J.
Project 1628	Identification And Analysis Of The Genes Of Marek's Disease Herpesvirus And The Proteins They Encode	Velicer, L.F.
Project 1629	Lignin Degradation By Wood-Rotting Fungi	Reddy, C.A.
Project 3116	Bacterial Ecology: Diverse Energy Reactions And Regulation In Bacteria	Uffen, R.L.
Project 3120	Microbial Decomposition Of Organic Matter In Aquatic Systems	Klug, M.J.

Microbiology & Public Health

(continued)

Project 6850	Passive Immunization Of The Bovine Lower Respiratory Tract Against <i>Pasteurella Haemolytica</i>	Walker, R.
Project 6858	PCR-Based Evaluation Of The Influence Of Vaccination On Pseudorabies Virus Latency	Maes, R.K.
Project 6861	Nucleotide Sequence Analysis Of cDNA Encoding The Matrix-Like Protein That May Elicit CMI Against BRSV	Velicer, L. E.
Project 7559	Polymerase Chain Reaction-Based Detection Of Pseudorabies Virus Latency	Maes, R.
Project 8047	Gene Insertion Into The Avian Germ Line Using Retroviral Vectors	Salter, D.
Project 8066	Enhancement Of Urea Fertilizer Efficiency	Hausinger, R. P.
Project 8076	Root Hair Deforming And Nodule Initiating Factors From <i>Rhizobium Trifolii</i>	Dazzo, EB.
Project 8078	Marek's Disease Herpesvirus: Membrane Glycoprotein Gene Analysis, A gD Homolog	Velicer, L.F.
Project 8096	Characterization And Inhibition Of Bacterial Urease	Hausinger, R. P.

MSU-DOE Plant Research Lab

Project 1501	Genetic Manipulation Of Lactic Dehydrogenase Enzymes In Cereals In Subproject Title	Hanson, A.D.
Project 8048	Molecular Basis And Function Of Stress-Induced Betaine Synthesis In Plants	Hanson, A.D.
Project 8055	Photoperiodic Control Of Gibberellin Metabolism In Long-Day Plants	Zeevaart, J.
Project 8063	Studies Of Ethylene Formation Using Mutants And Photoaffinity Probe	Kende, H.
Project 8067	The Role Of Lipid Unsaturation In Cold Sensitivity	Sommerville, C. R.
Project 8077	Control Of mRNA Stability In Dicotyledonous Plants	Green, P.J.
Project 8080	A Gene Controlling The Reaction Of <i>Arabidopsis</i> To The Black Rot Disease	Sommerville, S.C.
Project 8081	Molecular Basis And Manipulation Of Stress-Induced Betaine Synthesis In Plants	Hanson, A.D.
Project 8082	CIS And Transacting Elements/Factors In Nodulin Gene Regulation	De Bruijn, E.J.
Project 8090	Role Of Cell Wall-Degrading Enzymes In Plant Pathogenesis	Walton, J.D.
Project 8095	Photoperiodic Control Of Gibberellin Metabolism In Long-Day Plants	Zeevaart, J.A.
Project 8100	Genetic Analysis Of Plant Cell Wall Structure And Function	Somerville, C.R.

Packaging

Project 1520	Diffusion And Sorption Properties Of Plastics As Related To The Quality Of Packaged Products	Giacin, J.
Project 3321	Improving The Quality Of Products And Distribution Productivity Through Packaging Innovation	Twede, D.
Project 3322	Mass Interactions In Solid Polymer/Fluid Phase Systems And Their Relation To Product Quality	Hernandez, R.J.
Project 7567	Use Of Eastern Hardwoods In Wood Fiber/Plastics Composites	Selke, S.

Park & Recreation Resources

Project 1514*	Tourism Impacts And Development Alternatives From The Local Rural Government Perspective	Stynes, D.
Project 3280	Travel, Tourism And Recreation Resource Center	Holecek, D.F.

Pathology

Project 1154*	Prevention And Control Of Enteric Diseases Of Swine	Grimes, S.
Project 1307	Pathologic Effects Of Chemicals Of Importance To Michigan Agriculture	Sleight, S.D.
Project 1534	Mechanisms Of Resistance To Rotavirus-Associated Disease	Patterson, J.
Project 1634	Hematopathology Of Line-Bred Livestock	Bell, T.G.
Project 1647	Ocular And Otic Pathology Of Animals	Render, J.A.
Project 1651	Genetic Disorders Of Livestock	Padgett, G.A.
Project 1658	Prevention And Control Of Enteric Diseases Of Domestic Animals	Grimes, S.D.
Project 6853	Heteromyeloma Against The 987P Pilus Of Enterotoxigenic <i>Escherichia Coli</i> A Porcine/Murine	Grimes, S.
Project 6863	B-Mannosidosis Carrier Detection In Salers Cattle Using RFLP Analysis	Patterson, J.S.
Project 6867	Molecular Aspects Of Latency In Herpesvirus Of Turkeys	Mackenzie, C.D.

Pesticide Research Center

Project 1571*	A National Agricultural Program To Clear Pest Control Agents And Animal Drugs For Minor Uses	Hollingworth, R.
Project 7541*	NC Regional IR-4 Leader Lab Program To Clear Pest Control Agents For Minor Uses	Hollingworth, R.
Project 7563	Michigan NAPIAP Project, 1990	Olsen, L.
Project 7575	Assessment Of Episodicatmospheric Events That Regulate Movement Of Economically Important Migratory Pests	Whalon, M.E.
Project 7577	IR-4 Animal Drug Program – Headquarters	Hollingworth, R.M.
Project 8052*	NC Region IR-4 Leader Lab Program To Clear Animal Drugs For Minor Uses	Hollingworth, R.
Project 8068	Production Of Polygene Transgenic Rice And Confirmation Of Gene Expression In Their Progeny	Sticklen, M.
Project 8086	Polygene Transgenic Rice And Confirmation Of Stability Of Foreign Genes In The Plant Progeny	Sticklen, M.B.

Physiology

Project 1542	Neurohumoral Control Of Growth And Development Of The Exocrine Pancreas In Vitro	Hootman, S.
Project 1554	Carbohydrate Recognition During The Development Of The Nervous System	Zipser, B.

Center for Remote Sensing

Project 3312	Agricultural And Natural Resource Management: Applications Of Advanced Information Processing Technologies	Bartholic, J.
--------------	---	---------------

Resource Development

Project 1075	Natural Resources In Economic Development: Spatial Analyses	Chappelle, D.E.
Project 1102	Government, Science And Resources: Interactions And Conflicts	Bronstein, D.A.
Project 1515*	Policy Implications For Farm Household And Rural Community Responses To Economic Changes	Vlasin, R.D.
Project 1536	Systems Approaches To Resource Assessment, Planning And Management For Rural Development	Schultink, G.
Project 1545	Identification, Assembly And Application Of Developmental Data With Michigan Community Decision Makers	Kimball, W.
Project 3235	Mineral Lands Development, Energy Requirements And Environmental Impacts	Kakela, P.J.
Project 3267	Design And Management Alternatives For Sustainable Agriculture And Natural Resource System	Edens, T.C.
Project 3297	A Strategic Environmental Management System For Michigan's Inland Water Resources	Bartholic, J.
Project 3318	Water Resource Protection At The Interface Of The Hydrologic Cycle And Cultural Influences	Dersch, E.
Project 3803	Cooperative Action Among Michigan Communities To Achieve Economic Advancement	Vlasin, R.D.

Sociology

Project 1612	Strategic Analysis Of Technical Change In Commodity Subsectors	Busch, L.
Project 1620*	The Transformation Of Agriculture: Resources, Technologies And Policies	Harris, C.
Project 1641*	The Changing Structure Of Local Labor Markets In Nonmetropolitan Areas	Bokemeier, J.
Project 1642*	Organization And Structural Changes In The Dairy Industry	Schwarzweiler, H.
Project 3283	Trends And Differentials In Infant Mortality In Michigan By Residence, Race And Sex	Johnson, N.E.

List of MAES Contributors

July 1, 1990
to June 30, 1991

Abbott Laboratories	Bergantz Flowers
Academy for Educational Development	Bil-Mar Foods, Inc.
Agdia Inc.	Biosys
Agency for International Development	Wm. Bolthouse Farms, Inc.
Agri Sales, Inc.	Bordine's Better Blooms, Inc.
Agricultural Engineering Institute	Government of Botswana
Agrolinz, Inc.	BPI (Plant Growers Association)
Agrosoke, Inc.	E.J. Brach Corporation
Agtrol Chemical Products	Brady Farms, Inc.
Ajinomoto Co., Inc.	Bristol-Meyers
ALKO LTD	Brondum, Jens & Kirsten
Allelix Crop Technologies	Burnaby Lake Greenhouses
Allen & Baer Associates	Calgene, Inc.
Allen Foundation	University of California
Allen, Ms. Sandra J.	Callahan Enterprises, Inc.
Aluminum Company of America	Campbell Soup Company
American Colloid Company	Cargill Hybrid Seeds
American Cyanamid Company	Carlson, Dr. W.
American Dairy Association of Michigan	Carus Chemical Co.
American Floral Endowment	Casey Woodwyk, Inc.
Ameri-Can Pedigreed Seed Company	Cedar Chemical Corporation
American Vegetable Grower	Celery Research, Inc.
AMVAC Chem Corporation	CelPril Industries, Inc.
The Anderson Foundation	Central Produce Sales
The Andersons Management Corporation	Central Soya
Anheuser-Busch Co., Inc.	Chelsea Milling Company
Aquatrols Corporation of America	Cherry Marketing Institute, Inc.
Aristogenes, Inc.	Chevron Oil Field Research Co.
Asgrow Seed Company	Chilean Nitrate Corporation
Atochem North America, Inc.	Chippens Hill Vet. Hosp.
Barlow Flower Farm	Chiquita Brands, Inc.
Barry Creek Farms	Church & Dwight Co., Inc.
BASF Corporation	Ciba-Geigy Corporation
Bedding Plant Foundation	Clackamas Greenhouses, Inc.
B.E.I., Inc.	The Clay Minerals Society
Bellingham Frozen Foods	Club de Golf Rivermead

Coast Nurseries, Inc.
Columbia University
Consumers Power Company
Cooperative Elevator Company
Coron Corporation
CPM-Ingersoll Rand
Crystal Enterprises, Inc.
C.S.I. Chemical Corporation
Dersch, Eckhart
Development Alternatives, Inc.
Dow Chemical Company
Dow Consumers Products, Inc.
Dow Corning Corporation
DowElanco
E.I. DuPont de Nemours
East Coast Growers, Inc.
Eastman Kodak Company
Paul Ecke Poinsettias
Ecoged, Inc.
Eden Foods, Inc.
Egypt Nail Agricultural Research Program
Emerald Isle, Ltd.
Emmert, Robert
Enimont Americas, Inc.
ENSR Consulting & Engineering Corporation
Entotech, Inc.
Environmental Consultants, Inc.
Environmental Protection Agency
Evenflo Products
Exxon Corporation
Fairfield American Corporation
Far-Mor
Fats and Proteins Research Foundation
Federal Express
Fenn Valley Vineyards
Fermenta Animal Health
Fermenta ASC Corporation
Fermenta Plant Protection Co.
Fernlea Flowers Limited
FMC Corporation
Food & Agriculture Organization of United Nations
Food & Drug Administration

The Forest Wildlife Foundation
Four Star Greenhouse
Fruit Full Acres
Garst Seed Company
Garvey Commodities Corporation
General Electric Company
General Mills, Inc.
Gerber Products Company
Gettel Farms, Inc.
Don Gibbs Farm
GIFAP asbl
Gladys Porter Zoo
Glass Corner Greenhouses, Inc.
The Fred C. Gloeckner Foundation
Gowan Co.
Grace Sierra Crop Protection Co.
Grace-Sierra Horticultural Products Co.
Grant Township-Keweenaw County
Great Lakes Concentrates
Great Lakes Hybrids, Inc.
Great Lakes Protection Fund
Green Circle Growers, Inc.
Griffin Corporation
Growmark, Inc.
Gustafson, Inc.
Phoebe W. Haas Charitable Trust
Hanson, Dr. Eric
Hart Frozen Food Corporation
Harris Moran Seed Co.
Hastay's Greenhouse
Hathaway, William
Research Corporation of the University of Hawaii
Health Science Research Foundation
Heinz U.S.A.
Hershey Foods Corporation
Joseph H. Hill Memorial Foundation, Inc.
Hoechst-Roussel Agri-Vet Company
Horticultural Research Institute, Inc.
Howell, Gordon S.
Hybrid Seeds Abbott & Cobb, Inc.
ICI Americas, Inc.
University of Idaho

Illinois Institute of Technology, Research
 Institute
 ILSI Research Foundation
 Ingersoll-Rand Company
 International Enzymes Marketing
 Corporation
 ISK Biotech Corporation
 Israelite House of David
 Jamaica Agricultural Development
 Foundation
 Johnson SC & Sons, Inc.
 Johnson Wax
 Kaiser Agricultural Chemicals
 KALSEC, Inc.
 Kay Mukai Research Foundation
 W. K. Kellogg Company
 W.K. Kellogg Foundation
 Kent County Extension Office
 University of Kentucky
 Kietzer Farms
 King Milling Company
 Kirin Brewery Company, Ltd.
 Kleinsmith, Alma
 Knappen Milling Company
 Kraft General Foods
 Krummrey & Sons, Inc.
 Kuhlman, Mr. & Mrs. Henry M.
 Lalor Foundation
 Landis International, Inc.
 Lansing Board of Water & Light
 Lansing Grain Company
 Lebanon Chemical Corporation
 Lesco, Inc.
 Lewis, Charlotte F.
 Eli Lilly & Company
 Loveland Industries
 Manitoba Greenhouse Growers
 Association
 Martin Marietta Chemicals
 Martin Marietta Energy Systems
 Marketing Systems International
 Marvaso's Greenhouse
 Andy Mast Greenhouses
 Henry Mast Greenhouses, Inc.
 Neal Mast & Sons Greenhouses

MBG Marketing
 McDonough, Maureen H.
 Meister Publishing Company
 Mennel Milling Company of Michigan
 Merck & Company, Inc.
 MERRA
 Merrell Dow Pharmaceuticals, Inc.
 Meyer Financial Consulting Service, Inc.
 Michigan Agri-Business Association
 Michigan Agricultural Commodities, Inc.
 Michigan Apple Research Committee
 Michigan Asparagus Research Committee
 Michigan Bean Commission
 Michigan Biotechnology Institute
 Michigan Blueberry Growers Association
 Michigan Carrot Committee
 Michigan Celery Growers Research
 Council
 Michigan Cherry Committee
 Michigan Crop Improvement Association
 Michigan Department of Agriculture
 Michigan Department of Commerce
 Michigan Department of Education
 Michigan Department of Natural
 Resources
 Forest Management Division
 Office of the Great Lakes
 Wildlife Division
 Michigan Energy & Resource Research
 Association
 Michigan Floral Association
 Michigan Foundation Seed Association
 Michigan Lyme Disease Association
 Michigan Mint Research & Development
 Program
 Michigan Nursery & Landscape
 Association
 Michigan Onion Committee
 Michigan Peach Sponsors
 Michigan Pear Research Association
 Michigan Potato Industry Commission
 Michigan State Horticultural Society
 Michigan State Millers Association
 Michigan Sugar Company
 Michigan Trefoil Growers Associates

Michigan Turfgrass Foundation

University of Michigan

Michigan Vegetable Council, Inc.

Mid-American Growers

Mid-States Terminals, Inc.

Milwaukee County Zoo

Milwaukee Metropolitan Sewerage District

Mink Farmers Research Foundation

Minnesota Department of Natural Resources

Minnesota Golf Course Superintendent's Association

Mint Industry Research Council

Mobay Corporation

Molbak's Greenhouse Inc.

Monitor Sugar Company

Monsanto Agricultural Products Company

Monsanto Company

Moorman Manufacturing Company

MSU Horticulture Club

Multiform Desiccants, Inc.

Murco, Inc.

Muscular Dystrophy Association, Inc.

Mycogen Corporation

Myers, Ted R. & Ina

Nabisco Biscuit Co.

Nachurs Plant Food Co.

National Council of Paper Industry for Air & Stream Improvement

National Grape Cooperative Association

National Institutes of Health

National Livestock & Meat Board

National Particleboard Association

National Pork Producers Council

National Science Foundation

National Zoological Park

NATO Fellowship Portugal Invotan

Neogen Corporation

New Jersey EPA

New Zealand Agricultural Engineering Institute

Nor-Am Chemical Company

North American Strawberry Growers Associates, Inc.

North Carolina State University

Novo Nordisk

The Ohio State Research Foundation

The Ohio State University

The Ohio State University Research Fund

L.L. Olds Seed Co.

Oregon State University

Osborn Center for Economic Development

Parrish & Heimbecker, Inc.

Partek North America

PBI Gordon Corporation

Penford Products, Co.

Pepper Research, Inc.

Periwinkle Garden Club

Pheasants Forever, Inc.

Pickle Packers International, Inc.

Picles Seed Research Foundation

Pillsbury Company

Pioneer Hi-Bred International, Inc.

Plato Industries, Inc.

Post Gardens of Battle Creek, Inc.

Potash & Phosphate Institute of Canada

Premier Peat Moss, Ltd.

Priante, Alfred

Professional Plant Growers Association

Purina Mills

Quaker Oats Company

Red Arrow Products Company, Inc.

Residential Sewage Disposal

Resource Seeds, Inc.

Rhizo Tech Inc.

Rhone-Poulenc Ag Company

Rhone-Poulenc Nutrition Animale

Rockefeller Foundation

Rohm & Haas Company

Roses, Incorporated

Ross Laboratories

Royal Sluis, Inc.

Saginaw County Mosquito Abatement Commission

St. Julian Wine Co., Inc.

Sandoz Crop Protection Corporation

Schwagle, Frank

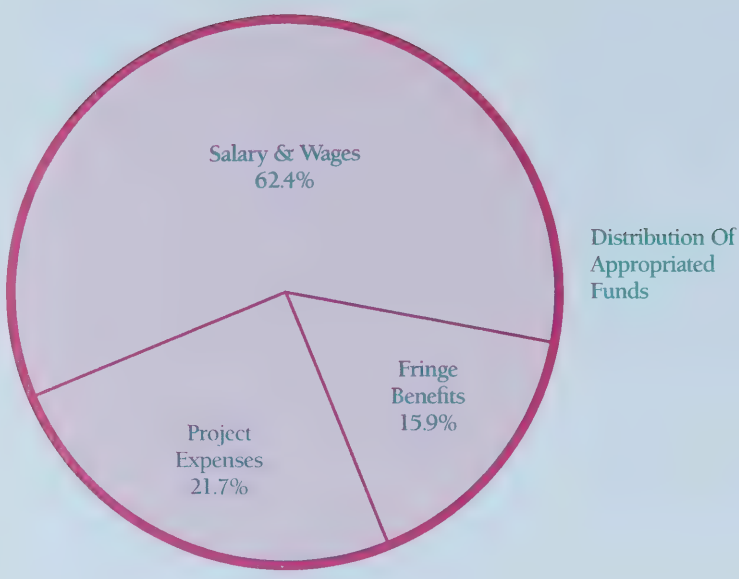
O.M. Scott & Sons Company

Select Sires, Inc.
 Selenium-Gellurium Dev. Assoc., Inc.
 Settrington's Fertilizer
 Snack Food Association
 Sonnyside Flowers
 Southeastern Poultry & Egg Association
 Southern Michigan Cold Storage
 Michigan Soybean Promotion Committee
 Sport Fishing Institute Fund
 Star of the West Milling Company
 Stokes, Mark B.
 Stokes Seed Company
 Sustane Corporation
 Svalof Seed, Ltd.
 Tennessee Valley Authority
 Thermal Distribution, Inc.
 Timbuk Farms, Inc.
 The Toro Company
 Tredegar Industries, Inc.
 Trout Unlimited
 Uniroyal Chemical Company
 United Agri Products
 U.S. Department of Air Force
 U.S. Department of Agriculture
 North Central Forest Experiment
 Station
 Science & Education
 Soil Conservation Service
 U.S. Department of Army
 U.S. Department of Energy
 U.S. Department of Interior
 U.S. Fisheries & Wildlife Service
 U.S. Golf Association
 The Upjohn Company
 Valent U.S.A. Corporation
 VanAtta's Greenhouse
 Vigoro Industries, Inc.
 Virginia Polytech University
 University of Virginia
 Vlasic Foods, Inc.
 Warner-Lambert Co.
 Western Michigan Bedding Plant
 Association
 Weyerhaeuser Co.
 Whei-Lan, Teng

Whiting Foundation
 Wilbur-Ellis Co., Brayton Chemicals
 Division
 Wildlife Unlimited, Inc.
 Wilkie Company
 Winrock International
 University of Wisconsin
 Wooden Shoe Greenhouses, Inc.
 Zaadunie, B.V.
 Zoecon Corporation

Financial Report

July 1, 1990
to June 30, 1991



INCOME:		<u>\$51,887,249</u>
Federal Appropriations:		\$4,602,580
Hatch	\$3,533,336	
McIntire-Stennis	\$167,046	
Hatch RRF	\$807,574	
Hatch Animal Disease Research	\$94,624	
State Appropriations:		\$21,731,883
TOTAL APPROPRIATIONS:		\$26,334,463
Grants – Federal, State & Private		\$25,552,786

EXPENSES:		<u>\$51,887,249</u>
Salaries	\$16,428,448	
Fringe Benefits	\$4,197,964	
Project Expenses	\$5,708,051	
Grants – Federal, State & Private	\$25,552,786	

Personnel

(Full-time Equivalents)

Research Staff*	155
Professors	77
Associate Professors	26
Assistant Professors	24
Research Associates and Specialists	28
Support Staff	174
Administrative Professionals	80
Supervisors	23
Clerical	59
Technicians	12

*Does not include department chairperson/unit administrators

Michigan Agricultural Experiment Station
Robert G. Gast, Director
Michigan State University
East Lansing, Michigan 48824 – 1039

SR-31, January 1992

*The Michigan State University Agricultural Experiment Station is an equal opportunity employer and complies with
Title VI of the Civil Rights Act of 1964 and Title XI of the Education Amendments of 1972.*